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ELECTRONIC FUN

with COMPUTERS AND GAMES

ICD08274

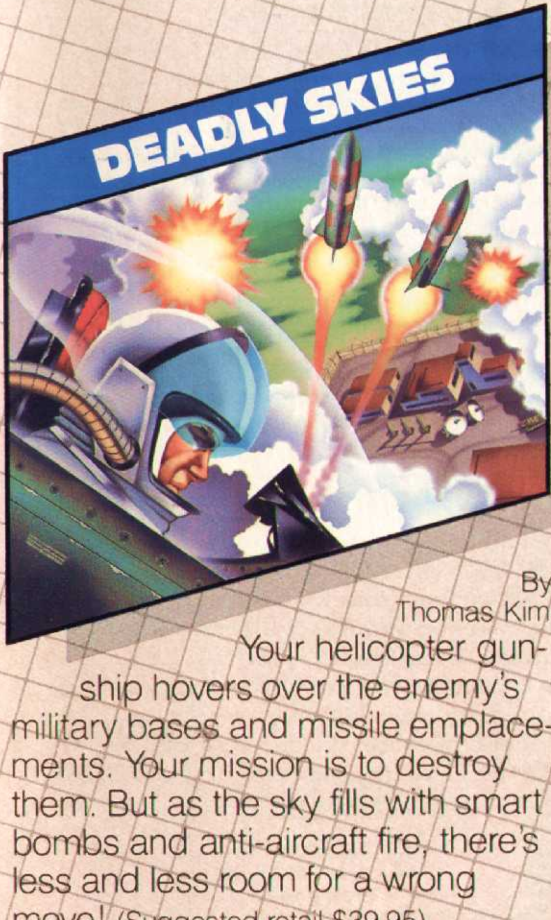
JULY 1983 VOL. 1 NO. 9

COIN-OP PREVIEW

Reviews: Kangaroo!
Beefsteak Tomatoes!
Happy Trails!
Space Fury!

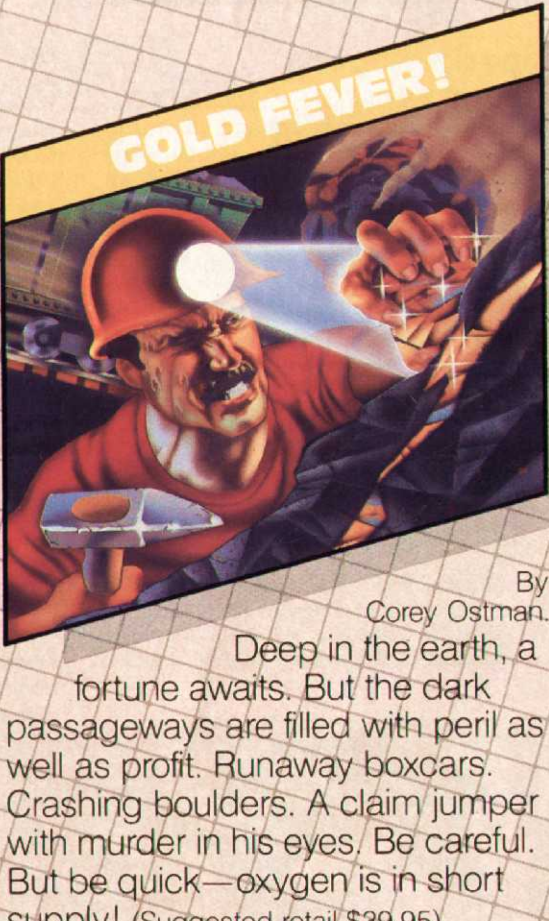
We Test
Mattel's
Aquarius
Computer

we have in store



By
Thomas Kim.

Your helicopter gunship hovers over the enemy's military bases and missile emplacements. Your mission is to destroy them. But as the sky fills with smart bombs and anti-aircraft fire, there's less and less room for a wrong move! (Suggested retail $39.95)



By
Corey Ostman.

Deep in the earth, a fortune awaits. But the dark passageways are filled with peril as well as profit. Runaway boxcars. Crashing boulders. A claim jumper with murder in his eyes. Be careful. But be quick—oxygen is in short supply! (Suggested retail $39.95)

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By
Jimmy Huey.

In a predatory world of killer worms, dragons, stalkers, pods and fly traps, the scorpion prowls the maze in search of sustenance. Frogs and their eggs mean survival to the scorpion. But they can also mean instant death! (Suggested retail $39.95)

VOLUME ONE, NUMBER NINE • CONTENTS • JULY 1983

ELECTRONIC FUN with COMPUTERS GAMES

Special Reports

HOT FUN IN THE SUMMER TIME *By William Michael Brown* The surf may be up but you'll be laying your quarters down this summer....23

STEPPING OUT WITH THE PROMQUEEN *By David Thomas* It may not look great in an evening gown but no one can burn an EPROM on a VIC-20 the way this baby can....36

ALL SYSTEMS LOGO *By Martin Bass* Even if you've never been particularly fond of reptiles, you'll love this turtle. It draws pictures and you don't have to clean its cage....41

THE ALL-PURPOSE VCS *By Mark Trost* Wait! Stop! Don't turn that out-of-date VCS into a planter! Turn it into a computer instead. How? With one of these step-up devices....44

VIDEO GAME HALL OF FUN Take your poll positions and vote for the best games of 1983....50

TIMEX AND IBM PC BUYER'S GUIDE A complete gamer's guide to all the companies making software....68

Regular Features

OFF THE BEATEN TRAKBALL DEPT: THE WHOLE GAMER'S CATALOG *By Randi Hacker* Sure you can roll Zaxxon a million times but do you do it wearing a pair of joystick high heels? And how have you survived this long without designer floppy disks?....31

PHIL WISWELL'S GAMEMAKERS: A GAME TO BEAT THE BAND *Interview by Phil Wiswell* You can call him J. and you can call him Ray but whatever you call him, J. Ray Dettling, the man behind *Journey Escape*, is not your run of the mill video game designer....83

FIRST SCREENING You've read the magazine now play the game... *Electronic Fun* by Barry Boyd for the Atari 400/800....87

Equipment Reviews

GAME WORKOUT THE MAZE GAME MAZE *By the Editors* If you're in a daze about mazes, this article may be just the thing you're looking for. We analyze and evaluate 19 maze games for home video game systems....71

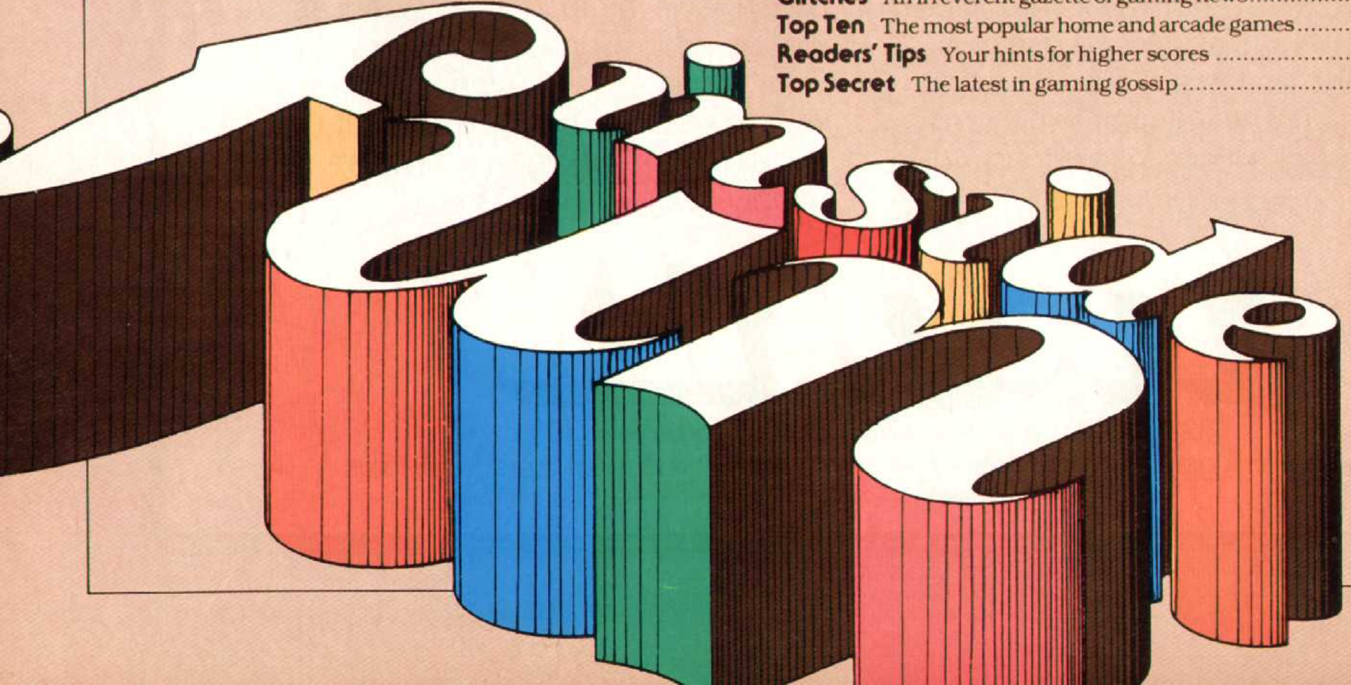
COMPUTER WORKOUT THE AGE OF AQUARIUS *By Jules Gilder* It is the dawning of the age of the under-$200 computer and Mattel hopes Aquarius will be one of the stars....78

Game Reviews

HITS & MISSILES George Kopp moseys down *Happy Trails*... Phil Wiswell and Bernie DeKoven take on the Furies in *No Escape*... Randi Hacker rabbit punches monkeys in *Kangaroo*... Ed Hulse saves the puny Earthlings in *Flash Gordon*... Howard Polskin lowers the boom on *Solar Sailer.* Plus *Mazogs, Chicken, The Arcade Machine* and other computer games....52

Departments

Editorial A word from the editors....6
New Products The latest in equipment....8
Letters We welcome your feedback....11
Input/Output Got a question? We've got the answer....12
EFG Times You read it here first....14
Screenplays Michael Blanchet's arcade strategy tips....18
Glitches An irreverent gazette of gaming news....20
Top Ten The most popular home and arcade games....77
Readers' Tips Your hints for higher scores....70
Top Secret The latest in gaming gossip....98



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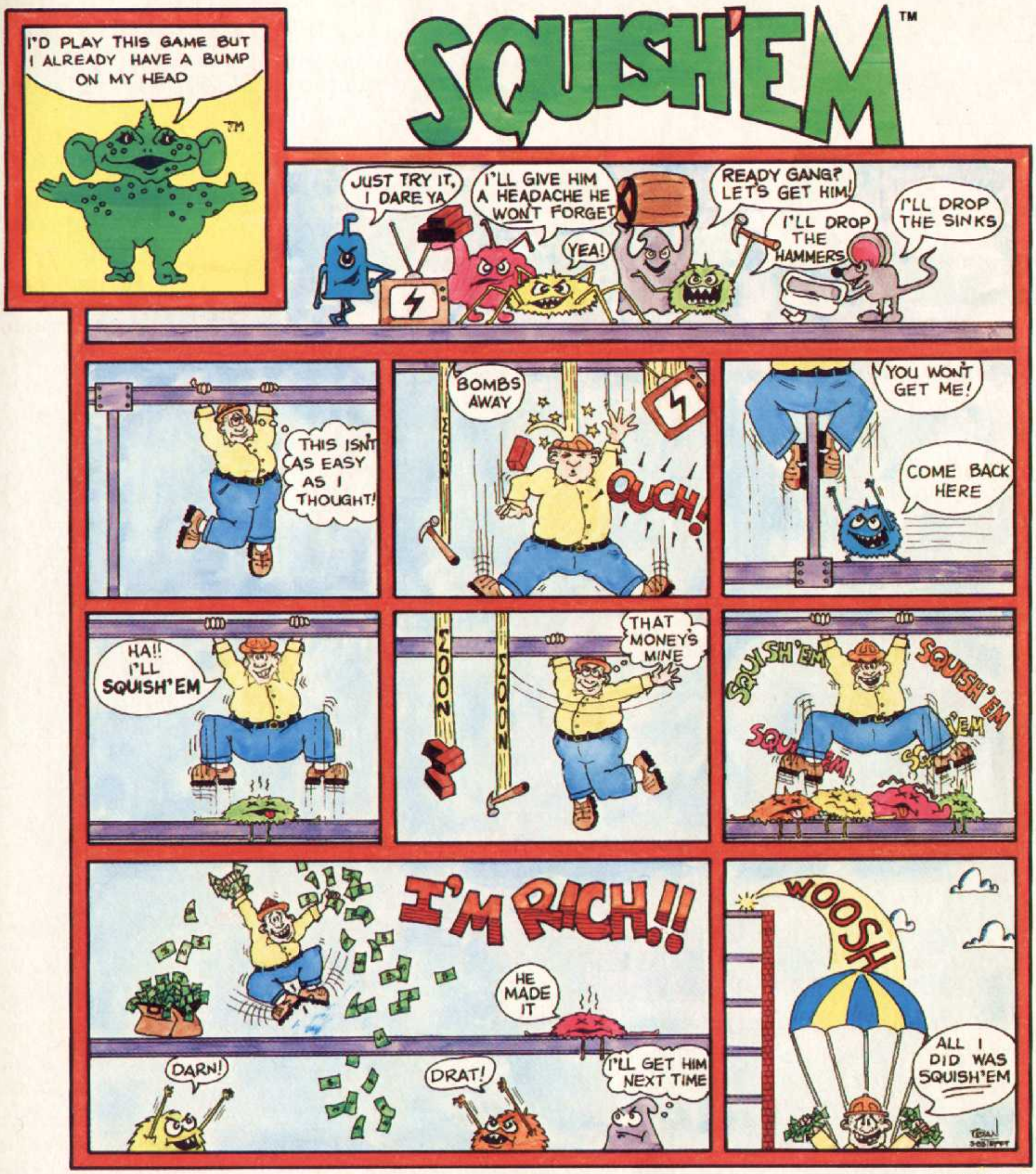
I'D PLAY THIS GAME BUT I ALREADY HAVE A BUMP ON MY HEAD
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JUST TRY IT, I DARE YA
I'LL GIVE HIM A HEADACHE HE WON'T FORGET
YEA!
READY GANG? LET'S GET HIM!
I'LL DROP THE HAMMERS
I'LL DROP THE SINKS
THIS ISN'T AS EASY AS I THOUGHT!
BOMBS AWAY
OUCH!
YOU WON'T GET ME!
COME BACK HERE
HA!! I'LL SQUISH'EM
THAT MONEY'S MINE
SQUISH'EM
SQUISH'EM
SQUISH'EM
I'M RICH!!
HE MADE IT
DARN!
DRAT!
I'LL GET HIM NEXT TIME
WOOSH
ALL I DID WAS SQUISH'EM

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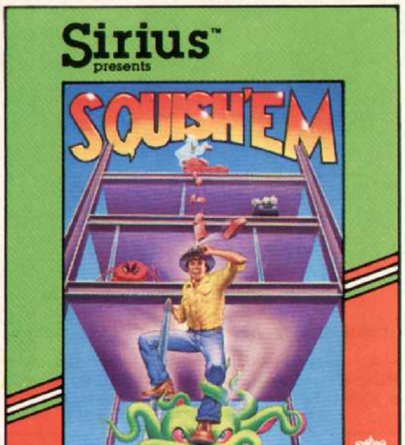
Atari 400, 800 & 1200 Cartridge

Commodore 64 Disk

VIC-20 Cartridge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GAME DESIGN BY TONY NGO

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Editorial

Laser in the lair

For most of us who aren't programmers or engineers, video games, and particularly arcade games, are still a source of amazement. Well, we ain't seen nothing yet! Get ready for the first laser disc game, Dragon's Lair *by Starcom.*

The laser optical videodisc, to use the invention's complete name, is one of the most sophisticated storage devices for information. Embedded in the disc's surface under a coating of laminate are a series of "pits" representing the digital code that the audio and video data has been translated into. As the disc revolves it's scanned by a laser which reads the pits. A digital-to-analog converter then turns the code into electrical information.

Each revolution of the disc represents a frame or page of information, and more than 50,000 pages can be stored on one disc—enough capacity for the whole Encyclopedia Britannica, *for example. It's also possible to get random access to each frame individually. By interfacing the disc player with a computer, or a computer game, your responses would direct the computer to call up the appropriate frames on the videodisc.*

That's the idea behind Dragon's Lair, *and it probably won't be too long before you can hook up a home videodisc player to your home computer. The possibilities are truly out of science fiction—you'll get graphics and animation you never thought possible in a video game.*

The big disadvantage with a videodisc right now is that it cannot be erased and rerecorded. Even that may change, however. The home computer of the future may not use floppy discs or cassettes at all but a recordable laser disc. Now you'll be able to get a foretaste of that in the arcade. ☐

The Editors

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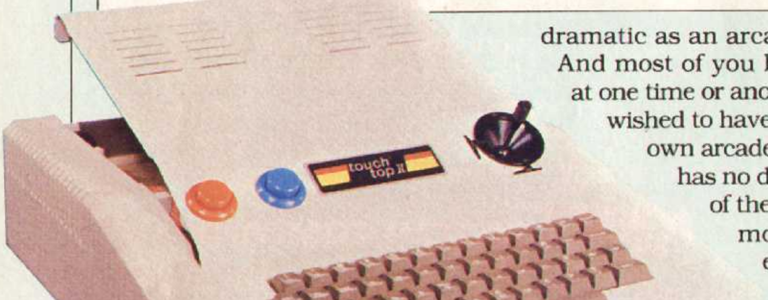
Sibling rivalry and altered states of the art



MICROSTAND

Touch Top II $99.95

Those of you who own Apple II computers know what a pain it is to attach joysticks. Those of you who don't, take our word for it. It's a lot of trouble. But the Touch Top II eliminates all the problems. It replaces the top panel on the Apple II and brings with it its own joystick, firing buttons and cooling vents. Not only can you use the joystick and buttons for game playing, they can also be used for moving graphics and cursors on screen—depending on what software you're using. At present it will only interface with the Apple II, but units for other models are in the works.

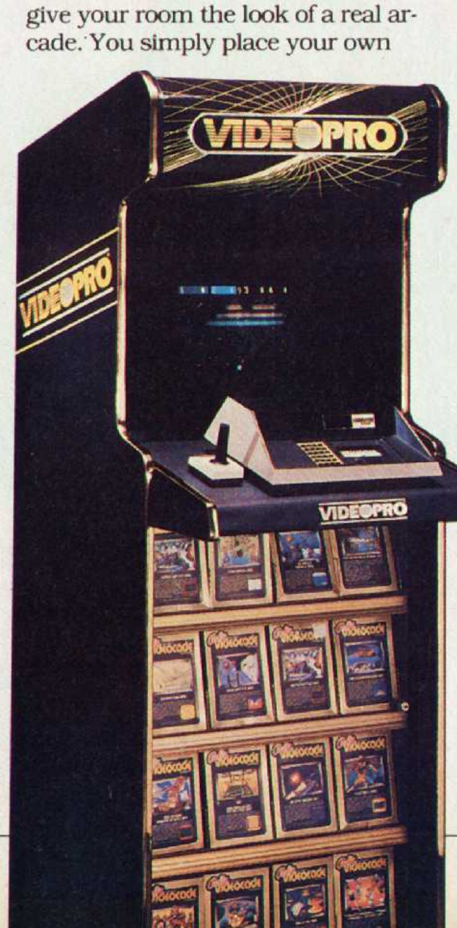
Microstand
2000 S. Holladay
Seaside, OR 97138

SCW CONSUMER PRODUCTS

VideoPro Home Video Game Center $329

Sure, home video games are fun, but let's face it, they're not as dramatic as an arcade game. And most of you have probably, at one time or another, wished to have your very own arcade game. This has no doubt been out of the question for most, due to their expense. But now you can turn that unsightly home video game into a flashy arcade game. How? With the VideoPro cabinet. VideoPro is the maker of cabinets for many of your favorite arcade games and it's now selling a cabinet that you can mount your home system on. It can be constructed in minutes and will give your room the look of a real arcade. You simply place your own video game system on the control panel and plug the TV, top light and game system into a power strip inside the cabinet. Then you plug the cabinet into the wall and you're ready to go. And best of all, no quarters are necessary.

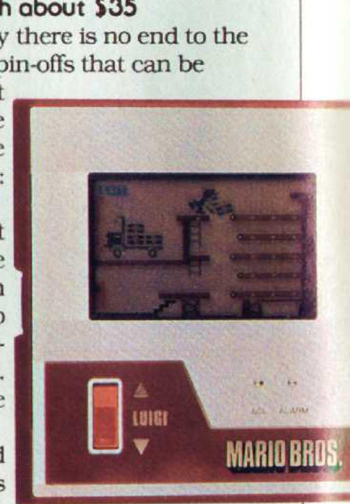
SCW Consumer Products Division
411 Swift St.
Santa Cruz, CA 95060



NINTENDO

Game Watch about $35

Apparently there is no end to the number of spin-offs that can be created out of a single theme. Case in point: *Donkey Kong*. First there was the original in which Mario was catapulted to fame. Then came *Donkey Kong Jr.* and now there's *Nintendo's Mario Bros.*, a game which brings other family members into the picture.



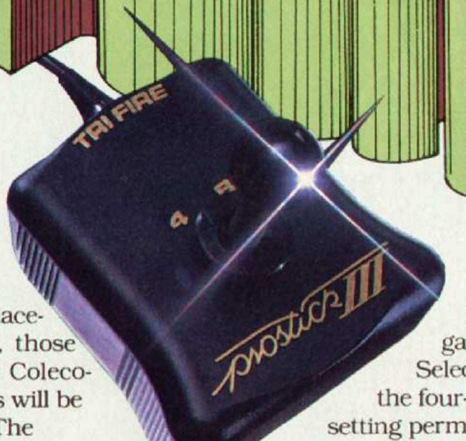
Those of you who thought Mario was an only child are in for a big surprise. It turns out that he has a brother (Luigi). And apparently rescuing girls from apes is not Mario's only job. He moonlights in a bottling plant. In this new pocket game from Nintendo, Mario and his brother move bottle cases onto the conveyor belt for packing them off the belt to be shipped. Should one of the brothers drop a case, the Boss comes out and shakes an angry finger at them. This game features side-by-side screens and multi-level play, color graphics and a clock/alarm with a digital read-out.

Nintendo of America
4820 150th Ave. NE
PO Box 957
Redmond, WA 98052

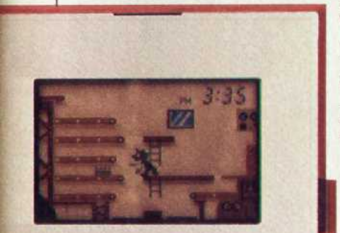
New Products

NEWPORT CONTROLS

Prostick III $29.95



Those of you who don't like making choices are going to be very disheartened by the news that there is yet another joystick replacement. On the other hand, those of you who don't like the ColecoVision controller as it stands will be very pleased by this news. The Prostick III is a direct replacement for the ColecoVision controller. It comes with its own y-adaptor cord which means you can use it at the same time that you use the keypad. The Prostick III also offers a tri-fire bar located at the top end of the base. This allows either right- or left-handed play and is depressed by using your index finger. Depressing the left side of the bar activates one firing function while depressing the right side activates another. Pressing down on the center of the bar activates both firing functions together. In addition, Prostick III offers a four-way/eight-way switchable gateplate. Selecting the four-way setting permits only horizontal and vertical action which improves precision on games such as *Donkey Kong.*



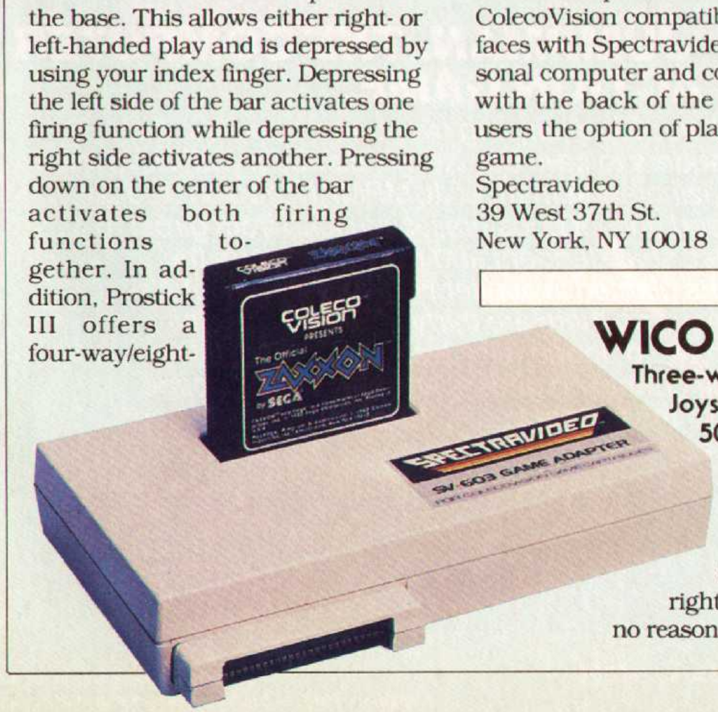
Newport Controls
15425 Los Gatos Blvd.
Los Gatos, CA 95030

SPECTRAVIDEO

SV-603 Game Adaptor under $70

First there was Coleco's Atari adaptor. Then there was Intellivision's. And now Spectravideo is offering its own—but not for Atari games. The SV-603 adaptor is designed for ColecoVision compatibility. It interfaces with Spectravideo's SV-318 personal computer and connects directly with the back of the unit, giving users the option of playing any Coleco game.

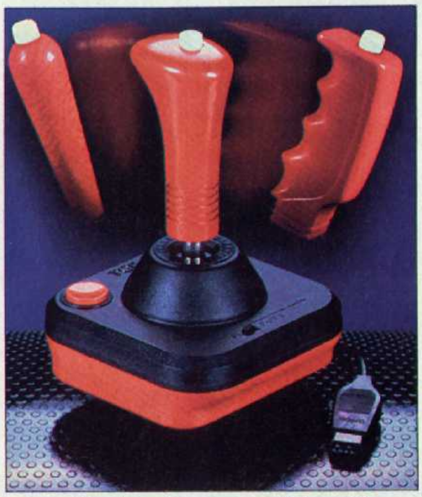
Spectravideo
39 West 37th St.
New York, NY 10018



WICO

Three-way Deluxe Joystick (Model 50-2010) $44.95

You like to wear different clothing to go with your different moods, right? So there's no reason why you shouldn't use different joysticks also, right? But then there's all that plugging and unplugging that has to be done which can be a nuisance. With Wico's new three-way joystick, all that has been eliminated. The three-way deluxe joystick has three interchangeable grips—a textured-finish bat handle and two smooth-finish grips. It's directly compatible with the Atari 2600, Atari 400/800, VIC-20 and Commodore 64 and, with appropriate Wico adaptors, it will work with other home video games and computers as well. In addition, it's got two fire buttons which operate independently, and eight position movement.



Wico
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Niles, IL 60648

If You Liked Donkey Kong, You'll Love JUMPMAN!

JUMPMAN. THE COMPUTER ACTION GAME.

If you liked jumping over barrels and climbing ladders to save damsels in distress, you'll love the blazing excitement of JUMPMAN. Your incredible speed and jet boosters let you leap from girder to girder, scale ladders and ropes to disarm the bombs planted in Jupiter Headquarters. But it's not easy and there are thirty levels of difficulty. You'll have to dodge missiles, killer robots, flying saucers, crumbling girders and vanishing escape Routes. In the heat of battle, JUMPMAN must keep a cool head.

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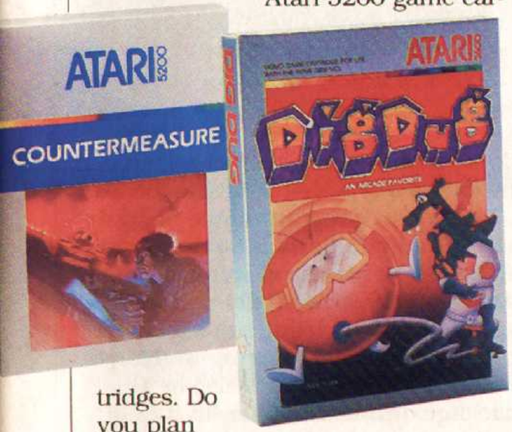
JUMPMAN Designed by Randy Glover
DONKEY KONG is a trademark of Nintendo of America, Inc.

Letters to the editors

ROOM FOR REVIEWS

In your November issue you gave a review of the Atari 5200 and four Atari 5200 game cartridges. Do you plan on reviewing the rest of the Atari 5200 game cartridges?

Charles Lowery
Brooklyn, NY



Space just doesn't permit us to do a review of every single cartridge for every system. But never fear, Charles—we'll continue reviewing the best of the 5200 cartridges as they come out. In fact, check Hits & Missiles in this issue!

TRADIN' AMERICA

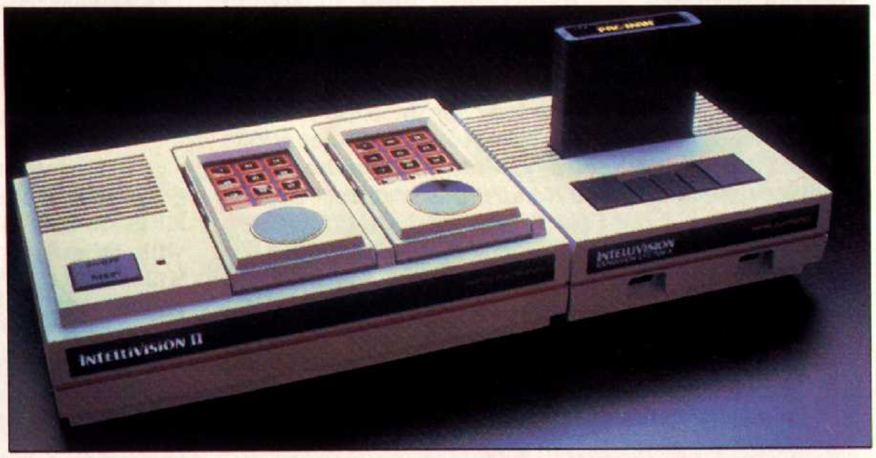
The March issue of *Electronic Fun* contained a column called "Used Video Games" that referred to our company, Tradin' America, as a source for buying used computer and electronic games. While we appreciate the publicity given, the published information is incorrect. Tradin' America does not sell these items. Rather, we provide people who are involved in selling or trading these games and equipment with national classified advertising at competitive rates. Tradin' America features an "Electronics, Computer and Video" section which appears in each issue. Tradin' America is the national section of the Tradin' Times. We are published weekly in Detroit, Cleveland, Columbus, Chicago, Milwaukee, Minneapolis/St. Paul, St. Louis, Kansas City, Houston, Atlanta and Philadelphia. We would like to thank each of your readers who have contacted us and placed ads within the past few weeks. For readers interested in advertising used games and equipment for sale, trade, or wanted to buy, Tradin' America is open Monday through Friday, 9:00 a.m. to 9:00 p.m. (EST). In Michigan and Canada, the number is 1-313-425-6444; people outside of Michigan and Canada can call toll free 1-800-521-0350.

Leslie E. Scofield
Tradin' America

WELL DONE

That was a great job on the Intellivision II preview! The article gave me a lot of new information—but here's a couple of things *you* might not know: (A) The *Locomotion* game you mentioned is a coin-op from Centuri—you seemed to have missed that fact; (B) *Vectron* is the first in a new game network called "Arcade Network". This game is *hard*—nine enemies and 99 skill levels. (By the way, the graphics are excellent. The picture you used hardly resembles it.)

D. Hartl
Traverse City, MI



HOTROD VCS

Your magazine is so well done and easy to understand that my son with a learning disability found it desirable to force his way through it. That is the first time he has ever done any recreational reading. Once clumsy beyond belief, the playing of video games has given him normal coordination. I am so happy my son reads your mag that I am trying to type this with both hands in casts. One suggestion: Because the Atari VCS is so popular and because it is very quickly becoming obsolete, we think that articles on how to "hop-up" a 2600 would be of interest to your readers.

Tom and Noah Koeppl
Minneapolis, MN

Write to us! We can't promise that we'll answer every letter, but we will read them all. We welcome your comments, advice and questions. Send your letters to: Electronic Fun, *350 E. 81st St., New York, NY 10028*

output-input

Drop me a line, on-line

I would like to know what new 5200 cartridges Atari plans to come out with. So far they only seem to copy the 2600 versions. Also, what is the memory of the 5200? I have heard 48K and 64K. Please respond so I can burn my friend.

NATIONAL
BALL 0
STRIKE 0
OUT 0

Rob Zmudka
Elmwood Park, IL

Carts scheduled for release for the 5200 are as follows: May—*Space Dungeon;* June—*Pole Position* and *Kangaroo;* July—*Vanguard, RealSports Baseball* and *Roadrunner;* August—*Joust* and *Moon Patrol* and September—*Pengo* and *Sport Goofy.* As far as we know, the 5200 has the same memory as the 400—16K of RAM.

I own an Intellivision along with the Intellivoice. Do you know when Mattel is going to bring out any new games for Intellivoice? I also heard that Mattel is making a keyboard that will plug into the Intellivision system. Is that true? If so, where would I find one and will it be worth buying?

Kent Uhrich
Arkansas

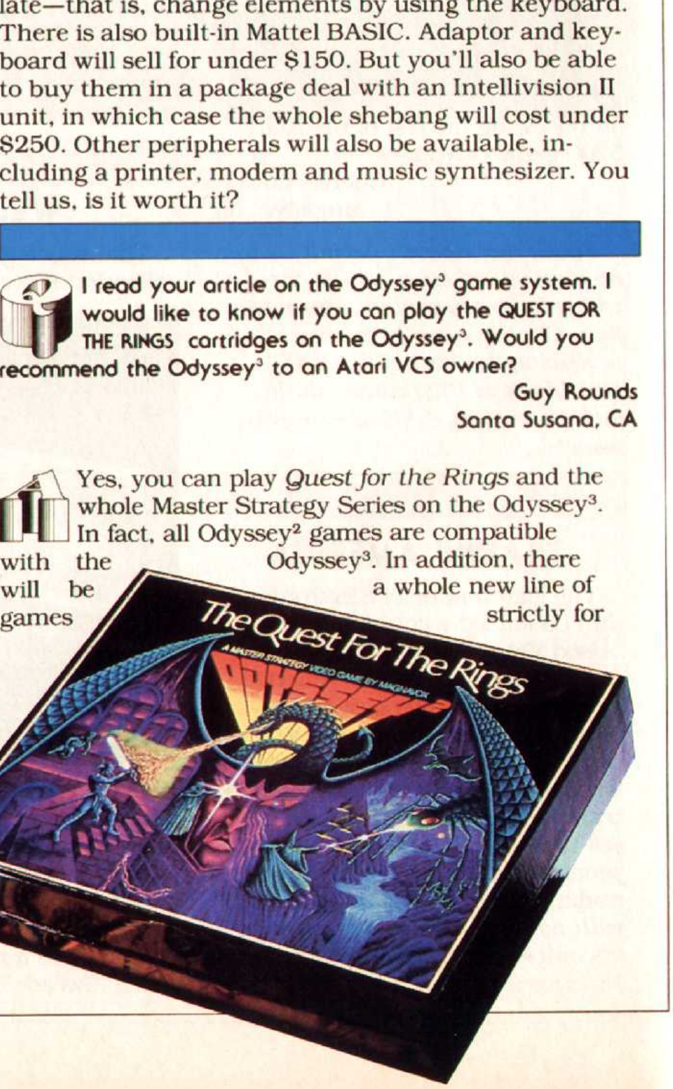
In answer to your question about Intellivoice, Mattel has at least one new game scheduled for release in August. Called *Space Shuttle*, it makes you the pilot of the Columbia. Naturally, there are helpful voices telling you things like "We have ignition," and "Colonel, this is mission control." The graphic perspective includes a view of earth which gets bigger as you come in for a landing in the desert. Mattel plans to continue releasing voice games so don't worry.

Now, about the keyboard. There's a new computer adaptor which comes with a typewriter-like keyboard which adds about 34K of user programmable memory to the Intellivision. It fits all Intellivision models from I through III and will have its own line of software, including some games that you can actually manipulate—that is, change elements by using the keyboard. There is also built-in Mattel BASIC. Adaptor and keyboard will sell for under $150. But you'll also be able to buy them in a package deal with an Intellivision II unit, in which case the whole shebang will cost under $250. Other peripherals will also be available, including a printer, modem and music synthesizer. You tell us, is it worth it?

I read your article on the Odyssey^{3} game system. I would like to know if you can play the QUEST FOR THE RINGS cartridges on the Odyssey^{3}. Would you recommend the Odyssey^{3} to an Atari VCS owner?

Guy Rounds
Santa Susana, CA

Yes, you can play *Quest for the Rings* and the whole Master Strategy Series on the Odyssey^{3}. In fact, all Odyssey^{2} games are compatible with the Odyssey^{3}. In addition, there will be a whole new line of games strictly for



the Odyssey^3 unit. As far as whether an Atari VCS owner should have an Odyssey^3 system, well, you'll have to decide for yourself. We will tell you that the Odyssey^3 should be out by late summer and should cost under $200.

Is there such a thing as a computer pen-pal?

Ken Steggles
Toronto, Ontario

Yes. All you avid correspondents out there will be happy to know that at least two information networks have services that will let you communicate with other computer users on-line. First, there's The Source which offers users three options: Chat, Participate and Electronic Mail. The first enables you to "chat" on-line with anyone in the world. You do, by the way, have the choice of not "chatting," exercised by simply typing "Refuse chat." Participate is like Chat but it involves several people, not just two—like a conference call. Electronic Mail is just what it implies. You can send letters via computer to anyone else who subscribes, provided you know his or her ID number. And the other person needn't be on-line to receive them. They will be stored in an electronic mailbox until the other user goes on-line and calls them.

CompuServe also has an Electronic Mail service which works the same way as the Source's. In addition, CompuServe offers a communications network which is a CB simulator. You've got a certain number of channels over which you can "broadcast," and you've got to have a handle. 10-4, good buddy.

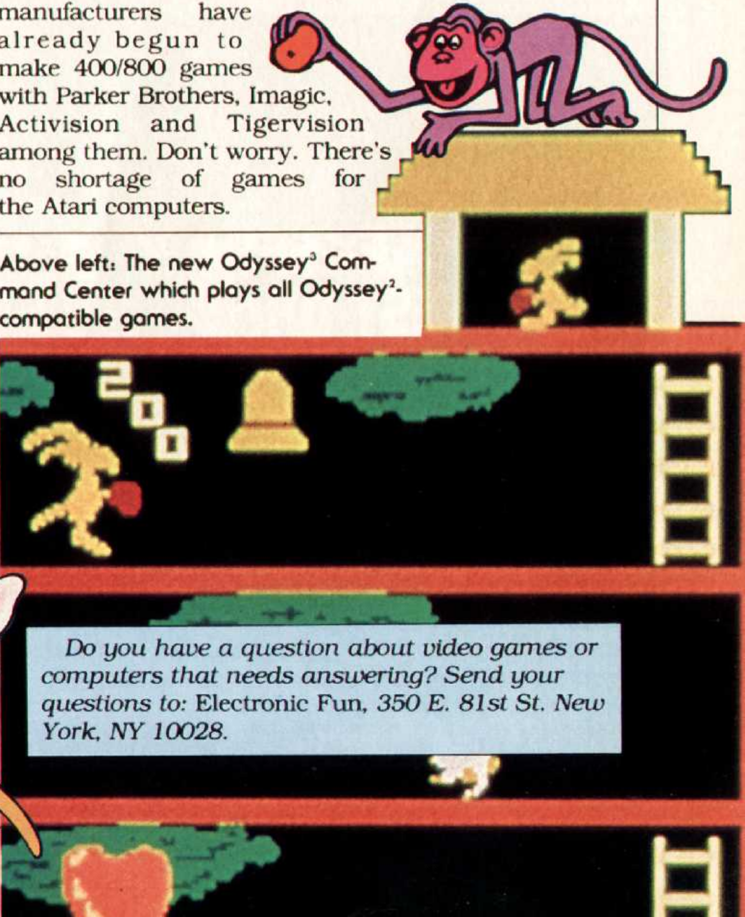
After paying the initial $100 to join The Source, time on-line costs anywhere from $10 to as low as $5.75 an hour, depending on the time of day you use it. If you wish to use CompuServe you can do it by buying a starter kit from Radio Shack for $19.95. This gives you one hour on-line free. After that, it's $5 per hour from 6:00 pm to 5:00 am and $22 per hour during prime time (8:00 am to 6:00 pm). CompuServe divides the hour into one minute increments, so a 59 minute conversation will cost less than a full hour one will. You can contact The Source at (703) 821-6660 and CompuServe at (800) 848-8199.

I am planning on buying an Atari 400 microcomputer, but first I would like to know two things. Will Atari be making games like DIG DUG, FAST FREDDIE or KANGAROO in the 400/800 format, and will VCS companies (like Parker Brothers, Coleco or Imagic) be making games in 400/800 versions?

Jeffrey Scavone
Union City, NJ

By the time you read this, *Dig Dug* should already be out in the 400/800 version. As far as the other two games are concerned, well, there are no plans as yet to make them but it's always possible. *Kangaroo,* by the way, is available in both 2600 and 5200 formats. Independent software manufacturers have already begun to make 400/800 games with Parker Brothers, Imagic, Activision and Tigervision among them. Don't worry. There's no shortage of games for the Atari computers.

Above left: The new Odyssey^3 Command Center which plays all Odyssey^2-compatible games.



Do you have a question about video games or computers that needs answering? Send your questions to: Electronic Fun, *350 E. 81st St. New York, NY 10028.*

E.F.G. Times

VOLUME ONE, NUMBER EIGHT JULY 1983

MID-EAST CRISIS SOLVED BY GAMER

What Imagic video game stars a certain jackal-headed god of the dead, the Temple of Ra, priceless treasures, and a terrible curse?

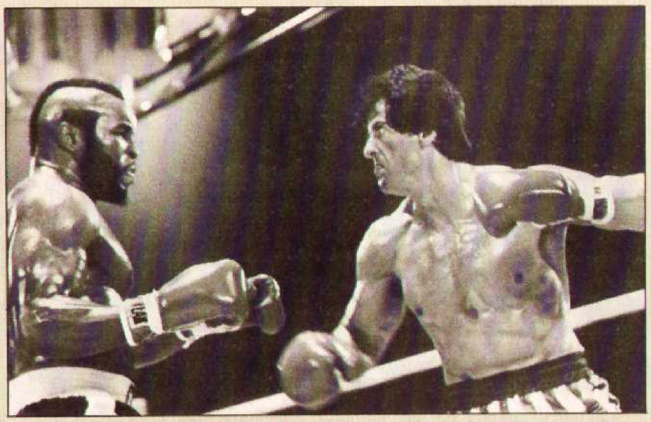
If you guessed *Riddle of the Sphinx*, you're right—and so was Charles Compton, 30, of Santa Monica, California. Compton (who admits he began playing video games to help himself give up smoking) not only plays *Riddle of the Sphinx*, he solves it, winning first prize and $1,000 for his efforts, as part of Imagic's *Riddle of the Sphinx* contest.

The contest rules specified that contestants had to not only solve the riddle correctly, but also have the most creative and intriguing answer. Compton presented his in story form, on a papyrus-like 12-foot scroll illustrated with authentic Egyptian hieroglyphs, including a few that show "a way the ancient Egyptians might have written Imagic if the company had existed then," said Compton. Owner of a special events decorating firm called Immaculate Reception, Compton has enjoyed a longtime interest in Egyptology.

"Entering the *Riddle of the Sphinx* contest was a natural for me," he adds.

DLE OF THE SP
EST WI

Sphinx *designer Bob Smith (left) and winner Charles Compton (scroll answer is pictured across bottom).*



Rocky *battles Mr. T on ColecoVision...*

Cartridge Calendar

Here's a roundup of the latest home game releases:

ACTIVISION—*Robot Tank* (VCS).

ATARI—For the VCS: *Jungle Hunt, Kangaroo, Pole Position, Krull, Cookie Monster Munch, Oscar's Trash Race, Alpha Beam, Big Bird's Egg Catch, Sorcerer's Apprentice.* For the 5200: *Realsports Tennis, Realsports Baseball, Space Dungeon, Pole Position, Kangaroo, Jungle Hunt, Dig Dug.*

CBS—For the VCS: *Solar Fox, Tunnel Runner, Wings.* For Intellivision: *Gorf, Wizard of Wor.*

COLECO—For ColecoVision: *Looping, Pepper II, Gorf, Blackjack/Poker, Destruction Derby, Rocky: Battle of the Champs, Super Action Baseball, Slither, Mr. Do.*

FOX GAMES—*Porky's* (VCS).

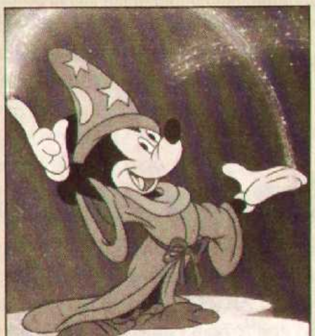
IMAGIC—*White Water* (Intellivision).

PARKER BROS.—For the VCS: *Q*Bert, Tutankham, James Bond 007, Death Star Battle (Return of the Jedi), Incredible Hulk, Popeye.* For Intellivision: *Q*Bert, Tutankham, James Bond 007, Strawberry Shortcake, Popeye.* For ColecoVision: *Tutankham.*

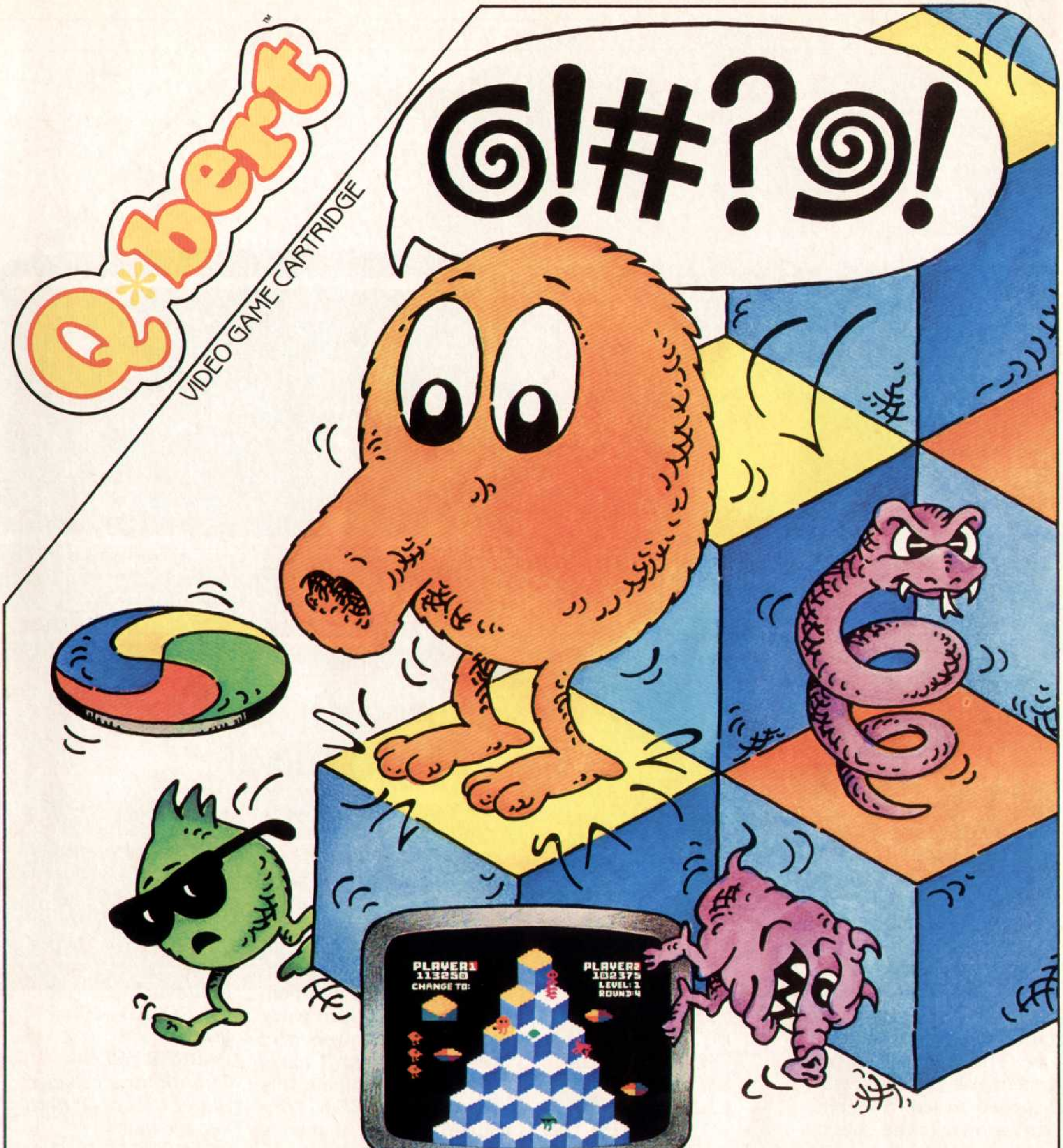
And there's more...

TELESYS—For the VIC-20: *Mobile Attack, Fast Food, Cosmic Creeps.* For the Atari 400/800: *Fast Food, Cosmic Creeps, Ram It.*

TIGER—*Polaris* (for Atari 400/800, VIC-20, TI 99/4A).



...Atari has Mickey's brooms



IT'S NOT EASY BEING Q*BERT,™ BUT IT'S FUN.

Q*bert
Arcade
Q*bert

No one ever said it was going to be easy hopping the irresistible Q*bert™ from cube to cube and staying out of harm's way. Especially when he's trying to avoid creeps like Coily and Ugg.

But, there are times Q*bert can't escape. And just like in the popular arcade game, he doesn't take it quietly. Q*bert mutters a few choice words, puts his nose to the grindstone and comes back for more.

You'll grow so attached to Q*bert, you won't want to stop playing. He's one little character who's good to the last hop.

Now you can have the new Q*bert video game cartridge in your home, too.

For your Atari 2600 Video Computer System™ and the Sears Video Arcade.™ Coming soon for Intellivision.®

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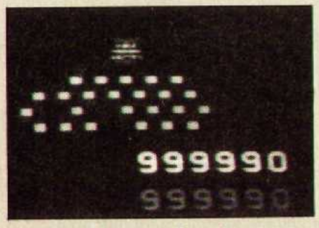
E.F.G. Times

★ MONTHLY CONTEST ★



Better dead than MUTANT

The winner of our April *Communist Mutants From Space* contest was John Fritschi of Orinda, California. This month's cartridge is *Galaxian* for *both* the VCS and 5200—that's right, gang: There'll be *two* winners this month. To enter, send a clear photo of your high score on a TV screen—along with your name, address, phone number, and the title of the cart you'd like to get as a prize—to *July Contest, EF*, 350 E. 81 Street, NY, NY 10028. All entries must be received by July 20th to qualify.

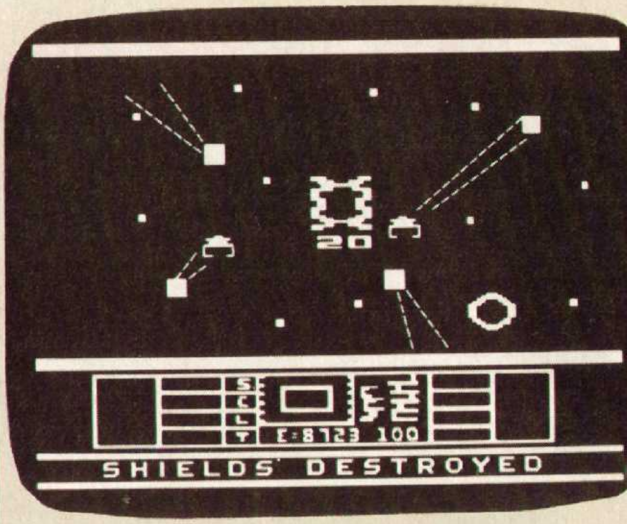
SETTING IT STRAIGHT

•Our article on the The Games Network (*EF*, March) was incorrect in one very important respect: The Games Network is *not* compatible with the Apple or with any other home computer system (we said "Just plug your Apple into. . ."—oops!). A new cable-TV-delivered video games programming service, The Games Network system has been specially designed to use the company's own home microcomputer unit. Cable TV subscribers use that special unit to play the games with when they subscribe to The Games Network. Our apologies to the good folks at TGN and to readers who were misled by our error.

•For you Apple hackers who found a big, fat hole in the program listing for Jim Stockla's *Star Destroyer* (First Screening, March), here are the missing lines (630, 640 and 650):

```
630 HCOLOR=4:FOR
    G=0 TO 159
    STEP LE +1:
    HPLOT 0,G TO
    279, 159-G:POKE
    807, (G+10)
    /10:CALL 809:
    NEXT
640 FOR G=0 TO 279
    STEP LE+1:
    HPLOT G,0 TO
    279-G,159:POKE
    807, (G+10)/10:
    CALL 809:NEXT
    630,(G+10)/10:
    CALL 809:NEXT:
    FOR G=1 TO
    3000:NEXT:GOTO
    750
650 NEXT:HGR:
    HCOLOR=5:
    XP=X1:YP
    =Y1:LX=70:
    LY=40:GOSUB
    130:HCOLOR=6:
    FOR J=0 TO 29:
    IF X(5)=0 THEN
    670
```

•One more correction: The name of the designer of Activison's *Keystone Kapers* is *Garry* Kitchen, not Gary Kitchen as we reported. Sorrry, Garry.



ColecoVision Carts Are Coming!

You say you've been waiting for all those other non-Coleco companies to start putting out their games for your ColecoVision? Well, The Fly hears the rumors first, but E.F.G. Times is first with *the facts.* Here's a hot-off-the-press list of third-party game manufacturers and the ColecoVision carts they'll be bringing out this year. Count on *EF* to keep you up to date. If there's news, you'll read it here.

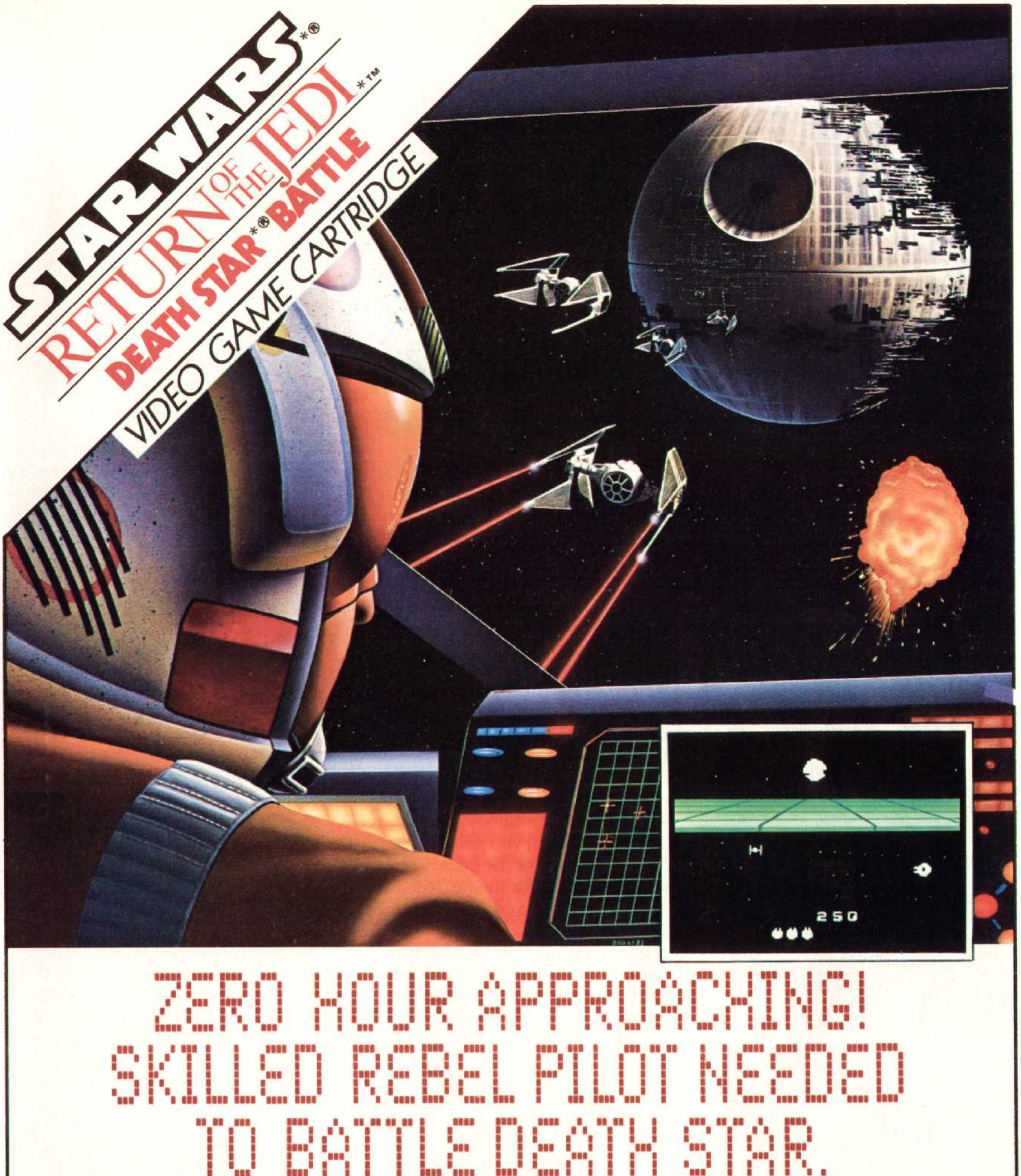
CBS ELECTRONICS—*Wings, Madden Football, Mountain King, Blueprint.*
FOX—*M*A*S*H, Porky's.*
IMAGIC—*Novablast* (summer), *Moon Sweeper* (October).
MICROLAB—*Miner 2049er.*
PARKER BROS—*Tutankham, Frogger, Super Cobra, Q*Bert, Popeye* (fall).
STARPATH—*Dragon Stomper, Escape From the Mindmaster, Phaser Patrol.*

QUOTE OF THE MONTH

"Watch a 12-year-old take evasive action and score multiple hits while playing *Space Invaders*, and you will appreciate the skills of tomorrow's (jet) pilot."
—President Ronald Reagan, in a speech delivered at the opening of Walt Disney Epcot Center in Orlando, Florida.

NEWS WANTED

Have you got an item for the EFG Times? News events, game tips, photos and other information are gladly accepted. Send material to: EF, *350 E. 81st St., New York, New York 10028.*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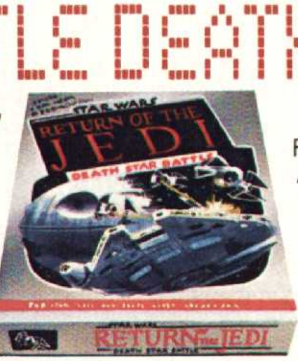
RETURN OF THE JEDI*™
DEATH STAR*® BATTLE
VIDEO GAME CARTRIDGE
250

ZERO HOUR APPROACHING! SKILLED REBEL PILOT NEEDED TO BATTLE DEATH STAR.

SITUATION DESPERATE! POWERFUL NEW DEATH STAR REPORTED UNDER CONSTRUCTION. MUST BE DESTROYED BEFORE ITS DEADLY COMPLETION OR ALL WILL BE LOST.

MISSION INVOLVES SPLIT-SECOND SKILL. MUST FLY MILLENNIUM FALCON THROUGH ENEMY FORCE FIELD...PENETRATE DEATH STAR DEFENSES...AND NEUTRALIZE CENTER CORE.


STAR WARS
RETURN OF THE JEDI
DEATH STAR BATTLE
RETURN OF THE JEDI

WARNING! EXPECT HEAVY RESISTANCE FROM EMPIRE'S TIE INTERCEPTORS. ALSO NOTE...BE ON ALERT FOR TRACKING DEATH RAY.

TIME RUNNING OUT. ALL REBEL PILOTS REPORT IMMEDIATELY FOR RETURN OF THE JEDI DEATH STAR BATTLE. THE THRILLING HOME VIDEO GAME FROM PARKER BROTHERS.

For the Atari 2600™ and soon available for Intellivision.®

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Screen plays

Food Fight & Sinistar: Throwing

By Michael Blanchet

FOOD FIGHT

Video games weren't around when I was a kid, so my friends and I had to improvise. One game we used to play (if you could call it a game) was Army. Decked out in real fatigues, each side with its own set of walkie-talkies, our first job was to secure ammo for the war. Use plastic guns? No way! Our battles were fought with tomatoes, rotten walnuts and apples, compliments of my neighbor's garden. So when I happened upon Atari's *Food Fight*, my fondest childhood memories were rekindled. An honest to goodness food fight—John Belushi would have been proud of this one.

Food Fight concerns Charly Chuck and his quest for a great American delicacy—an ice cream cone. Opposing Chuck are four crazy chefs—Oscar, Angelo, Jacques and Zorba—who I assume would rather see our hero eat something a little more cultured and refined—like snails, perhaps. The object of the game is to reach the cone before it melts. En route, Chuck must avoid the chefs, the food they throw and "holes" (represented on the screen by horizontal white lines).

Scattered around the playfield are piles of food including pies, watermelons, tomatoes and bananas. To arm yourself, you need to move Chuck into one of the piles. The chefs will also scurry for the nearest food stash to pick up a comestible to use against you.

For each chef you hit with a food item, you are awarded 100 points. Each successive hit is worth 100 points more than the last. Meanwhile, each food item left unthrown at the end of a round is worth 100 points.

The first thing you'll notice about *Food Fight* is that Chuck moves a lot slower than the chefs do. There are ways to work around this. In contrast to the chefs, who move without any apparent direction, you can select your destination. You can also fling food faster and more accurately, thanks to the wonderfully responsive joystick.

In the first round of play, head directly for the cone. Don't bother throwing any food—only two chefs will pop up to fight you. You should, however, pick up one item and hold it before you devour the cone. When the second round begins, Chuck will still have that object in hand, ready to wing it at the first chef that moves to threaten him.

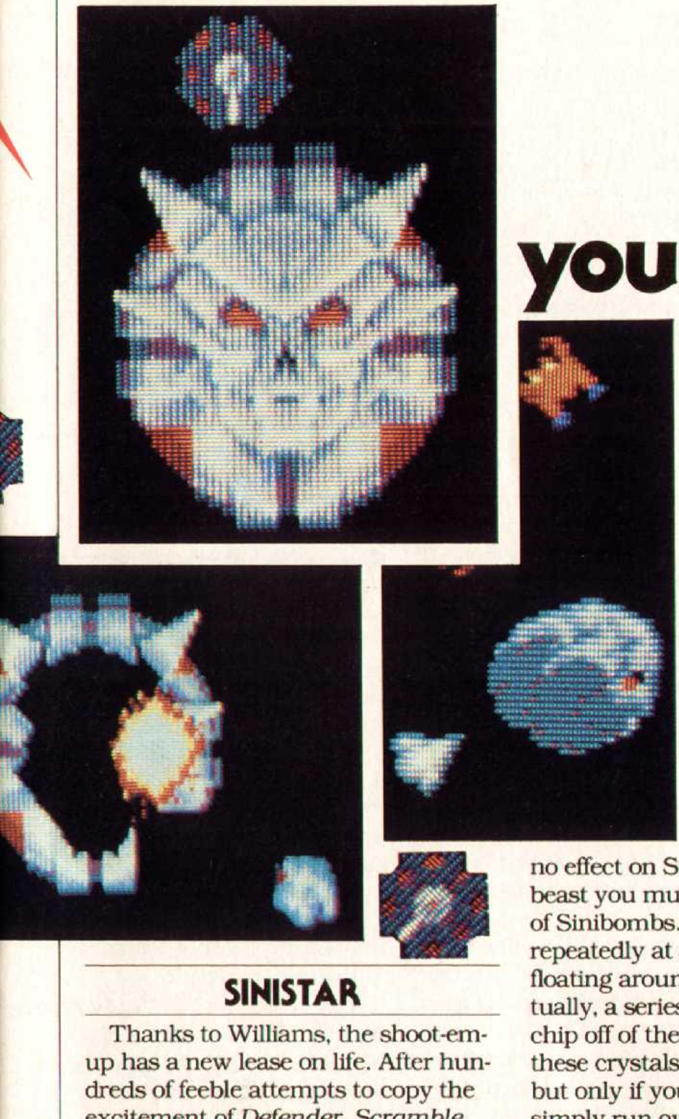
That's the most important strategic precaution: In each and every round, try to hold on to one food item before eating the cone. Doing so will prove most helpful in later rounds, when the chefs move *much* quicker than you do. Also, chances are that you will be cut off from the nearest food stash by one or two of the crazy cooks at the beginning of the game. If you are already armed, you can take out the nearest chef and move to the food pile.

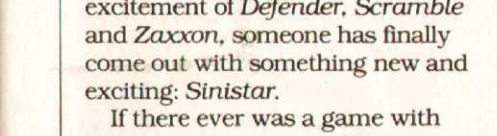
Wall Of Food

Don't make the same mistake I did, which was trying to avoid throwing food items. Go ahead and throw as much as you can get your hands on. While in earlier rounds, judicious tossing is recommended—when you come right down to it, lives are more important than points. If at any time you feel threatened, move to the nearest pile, put your finger on the throw button and pan the joystick across a forty-five degree angle. You'll unleash a wall of food that no chef can pass through. Use this fanning method until you learn to throw

Continued on page 97

your just desserts





SINISTAR

Thanks to Williams, the shoot-em-up has a new lease on life. After hundreds of feeble attempts to copy the excitement of *Defender, Scramble* and *Zaxxon*, someone has finally come out with something new and exciting: *Sinistar.*

If there ever was a game with graphics and action to leave you breathless, *Sinistar* is it. Likewise, if there ever was a game that could literally syphon the quarters right out of your pocket, *Sinistar* would be that game, too. Not that it's too hard—it's just one of those games that takes a while to figure out. And believe me, the directions tell you little more than where to insert your money.

The game's central characters are you, represented by a spaceship and the game's namesake, Sinistar. This guy is big, ugly, fast and to some extent indestructible. He also talks to you—and not very politely, either.

Each game is divided into waves or zones. Ultimately, your objective is to smash Sinistar before you are done in by one of his Warriors or by Sinistar himself. Unless you watch someone else play, you'll probably scratch your head and wonder what's going on.

The first thing you'll notice is that your laser blasts have no effect on Sinistar. To smash this beast you must first acquire a supply of Sinibombs. You do that by firing repeatedly at one of the planetoids floating around the heavens. Eventually, a series of small white dots will chip off of the large stone. Each of these crystals is worth one Sinibomb, but only if you capture it. To do so, simply run over it.

Life After Death

These same crystals are of value to Sinistar also. See, he's sort of dead at the beginning of each round. Before he comes to life, his Workers (red ships) must collect enough crystals to assemble him. Once the Workers have snatched up 13 crystals, Sinistar will warn you that he is alive—but in whole or in part, Sinistar is always a threat.

Your only means of defense against Sinistar is your arsenal of Sinibombs. These charges are dispersed one at a time when the Sinibomb button is pushed. Upon contact with your nemesis, they will knock off a piece of his body. When he is completely smashed the round ends, and warp engines kick in to whisk you off to the next zone.

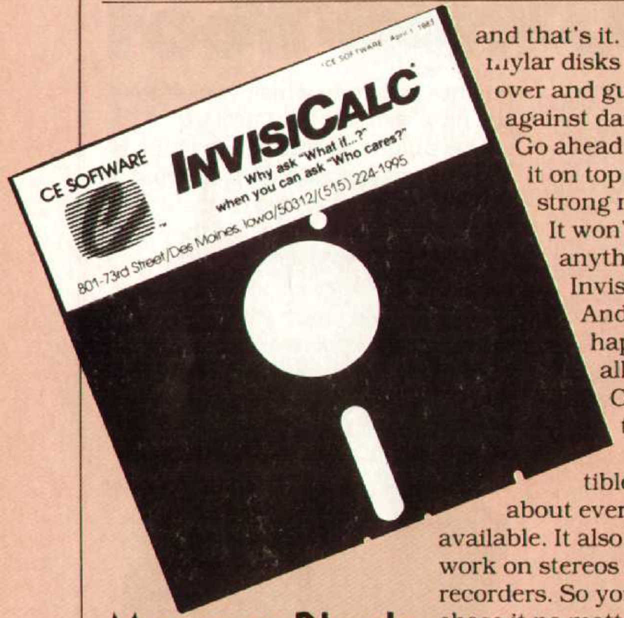
One unique feature of this game is the resiliency of your ship. Defying all known laws of physics, your ship bounces off every object on the screen except, of course, Sinistar himself. The Workers also pose no direct threat to your well-being. In fact, they are little more than a nuisance and are easily obliterated by your aft cannon. Warriors, on the other hand, are a little trickier. Initially, the Warriors (grey ships) are few and far between, not to mention slow and bad shots.

SINISTAR
Williams
SINISTAR

Later on, particularly in the Worker zone, the Warriors become quite

Continued on page 97

The King and IBM; computer marriage


CE SOFTWARE April 1 1983
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Why ask "What if...?" when you can ask "Who cares?"
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Memory Blank

Those of you who use computers know just how irritating it is to write up an elaborate program only to press the wrong key and have it disappear right before your very eyes. All that work just to end up with a blank screen. It's the sort of thing that can cause homicidal outbursts. But, if you start out with the express purpose of finishing with a blank screen, then there's virtually nothing to lose. That's one reason why InvisiCalc, a new product from CE Software, is so useful. InvisiCalc is an "incredible atomic work spreadsheet" that is "easy to learn, easy to use and amazingly easy to forget." The beauty of InvisiCalc is that it does nothing. It's an 8" floppy disk cover and that's it. No mylar disks to fret over and guard against damage. Go ahead. Leave it on top of a strong magnet. It won't do anything to InvisiCalc. And perhaps best of all, InvisiCalc is totally incompatible with just about every system available. It also doesn't work on stereos and tape recorders. So you can purchase it no matter what computer you own. In fact, you'll find you have just as little use for it even if you don't own a computer at all.

Five-Alarm Diaper

Ears ring. Telephones ring and now diapers ring. That's right. The most recent gadget to be introduced at a certain infamous trade show was a computerized baby diaper alarm. In this increasingly automated age, no one has to do anything for themselves anymore. And with the introduction of this little item, babies will no longer have to cry when they're wet. Their diapers will do it for them. The device is sensitive to dampness and goes off whenever the baby needs changing. But eventually every kid grows up. You've made a substantial investment, so what are you going to do once the kid is toilet-trained? If the diaper had a snooze button, you could use it as an alarm clock but even better, you can use it instead of calling up the weather report. Simply put it outside and if it goes off, you'll know you have to take an umbrella.

NO NO NO
5000.8

Calories in a Single Byte

Dieting has always been a pain. But the worst part is keeping track of all those calories. You write them down on a little piece of paper and lose it or you add wrong and forget to carry a one or, more frequently, you simply cheat thinking no one will catch you. Worse still is trying to estimate how many calories are in any given foodstuff. Those calorie books are no help. An "average" apple is 75 calories but just how big is an average apple? In my case, for instance, "average" means "as big as you can find without having to hold it with two hands." Now there's a computerized device which takes the guesswork out of calorie counting. Called Compucal, this little device weighs the food you're about to eat and gives you a breakdown of the components and the exact number of calories in it. You simply look up the food on a chart and enter the code number and that's it. It has 600 items in its little memory bank including brand names

Glitches

like McDonald's, Fritos and Oreos. And it can keep track of nine dieters' diets at the same time. Experienced dieters will, of course, find a way to cheat anyway. Hint: Enter the code number for watercress and then weigh a Twinkie.

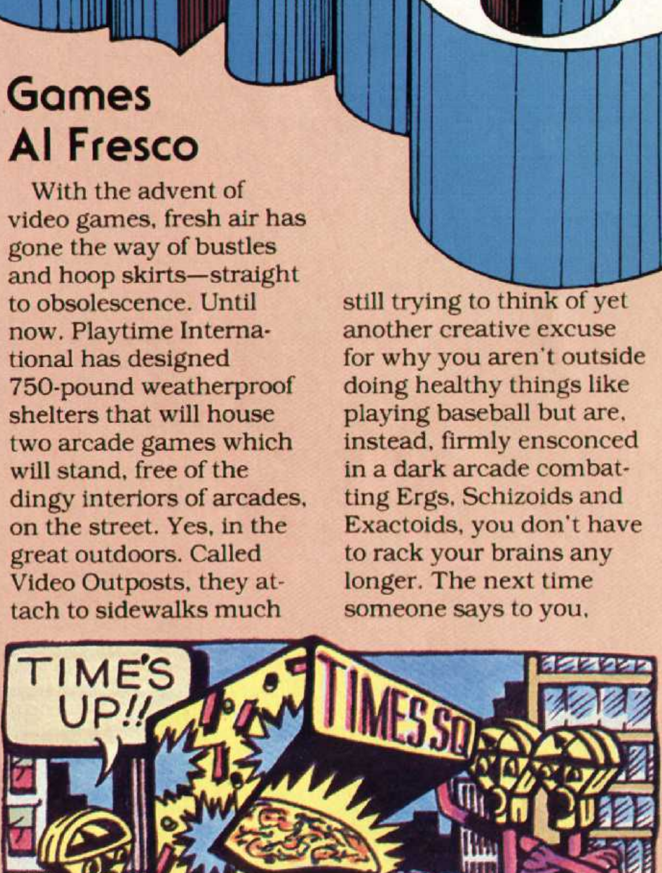
Royal
VIDEO! SO WHATS THE BIG DEAL?
Snobbery

The Computer She Loved

Queens and other blue-blooded life forms have always figured prominently in fantasy/adventure games for computers. Even modern nobility has its place—consider the case of the new computer game *The Queen's Bedroom* involving intruders and royal boudoirs. For these reasons it seemed high time the royal families themselves got involved in the computer revolution, and so they have. In fact, we wouldn't be surprised if the Prince Consort gave way to the prince console. You see, Queen Elizabeth II has fallen in love with computers. She was given a tour of the Hewlett-Packard plant on her recent damp trip to California and, according to reports, was unable to tear herself away from the terminals. *Time* recently made the computer Man of the Year. There's no reason why, then, the Queen (soon to be referred to as HRH, Her Royal Hacker) shouldn't make the computer a knight. She could award the OBE to the IBM.You've heard, no doubt, that things in Britain are classified as either "U" or "non-U" meaning, of course, upper class and non upper class. Riding is definitely "U" while falling off horses is definitely "non-U." That was before the hi-tech revolution. It looks as if this sort of classification system is going to have to change with the times. Owning a computer will be designated "CPU" while not owning one will be considered "non-CPU."

Games Al Fresco

With the advent of video games, fresh air has gone the way of bustles and hoop skirts—straight to obsolescence. Until now. Playtime International has designed 750-pound weatherproof shelters that will house two arcade games which will stand, free of the dingy interiors of arcades, on the street. Yes, in the great outdoors. Called Video Outposts, they attach to sidewalks much like soda machines do and are, according to the company, impervious to vandalism, rain and wind. So those of you who are still trying to think of yet another creative excuse for why you aren't outside doing healthy things like playing baseball but are, instead, firmly ensconced in a dark arcade combatting Ergs, Schizoids and Exactoids, you don't have to rack your brains any longer. The next time someone says to you, "Why don't you go outside in the fresh air?" say "Okay." But don't agree too quickly. You wouldn't want to arouse suspicion.



Illustrations: Joe Italiano, Cecily Lang, Pat Kinsley, Don Mathe

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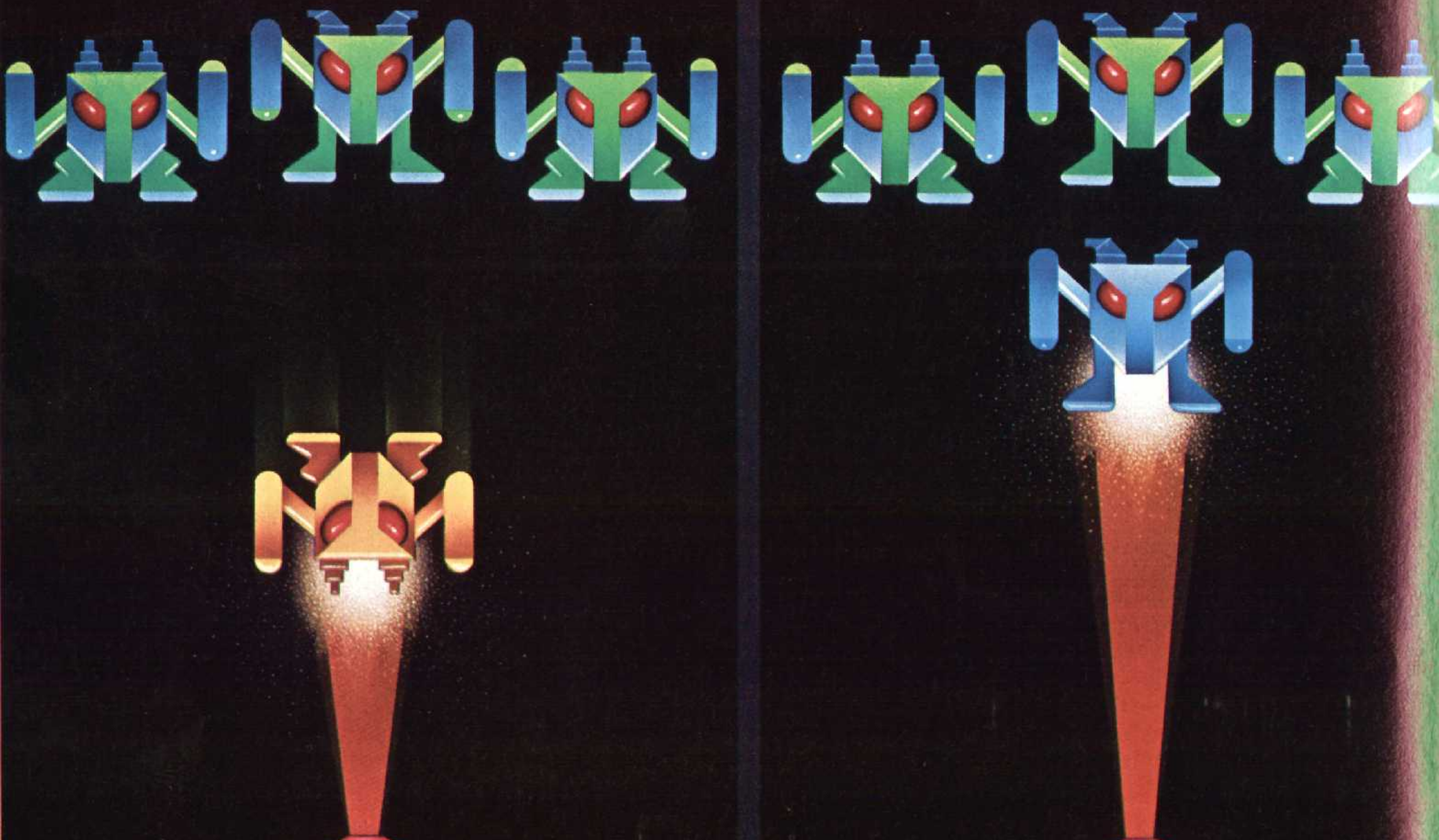

Which player is about to score with flying colors?

Better learn fast. Here comes Galaxian* from Atari®.

Pilot to co-pilot. Galaxian invaders are approaching your home. And they're only from Atari for use with the ATARI® 2600,™ Sears Video Arcade† systems, and the ATARI 5200™ Super System.

These Galaxians look, sound, and act no different than the Galaxians you've battled in the arcade. They swoop, dodge, and fire with equal cunning. So you have to know your stuff.

ATARI 2600
GALAXIAN
ATARI 5200

Like the player on the left. He's about to hit a flying yellow Flagship for 150 points. But his opponent, on the right, will score only 30 points for hitting the stationary blue Drone. Tough luck, rookie.

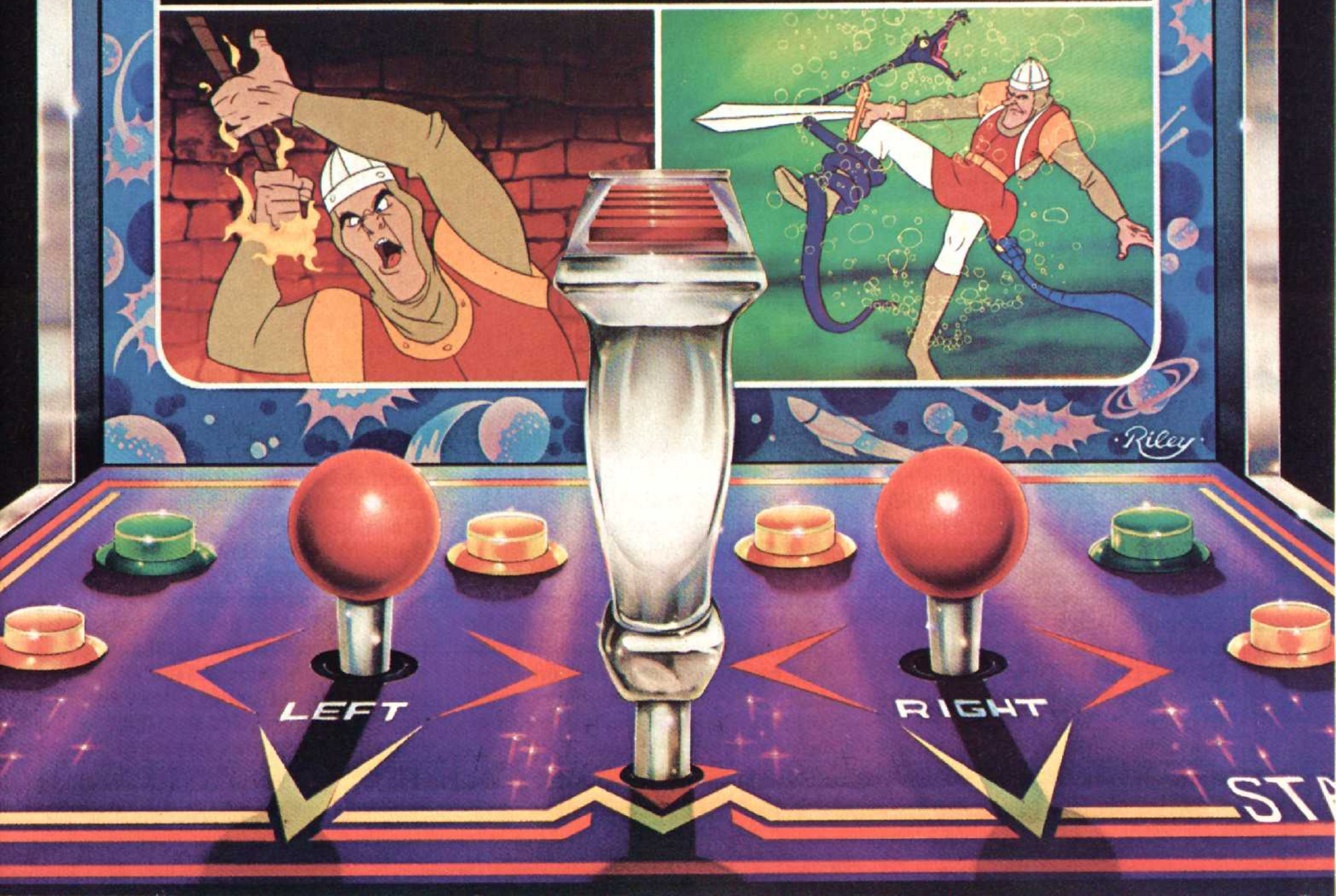
If you want to know even more about which Galaxians to hit, hit the stores for Galaxian.

ATARI®
A Warner Communications Company

HOT FUN In The Summertime

Here come the newest arcade hits

Every year the owners of video game arcades get together for a convention. Between swapping stories about life behind the scenes at the arcade they have a chance to check out the latest arcade games. Electronic Fun's *tireless travelling editor, William Michael Brown, was there to check out the games with them, and here's his report. Start saving your quarters, because there are some amazing new games on the way—including the first* animated *laser videodisc arcade game.*



DRAGON'S LAIR
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PRESENTS

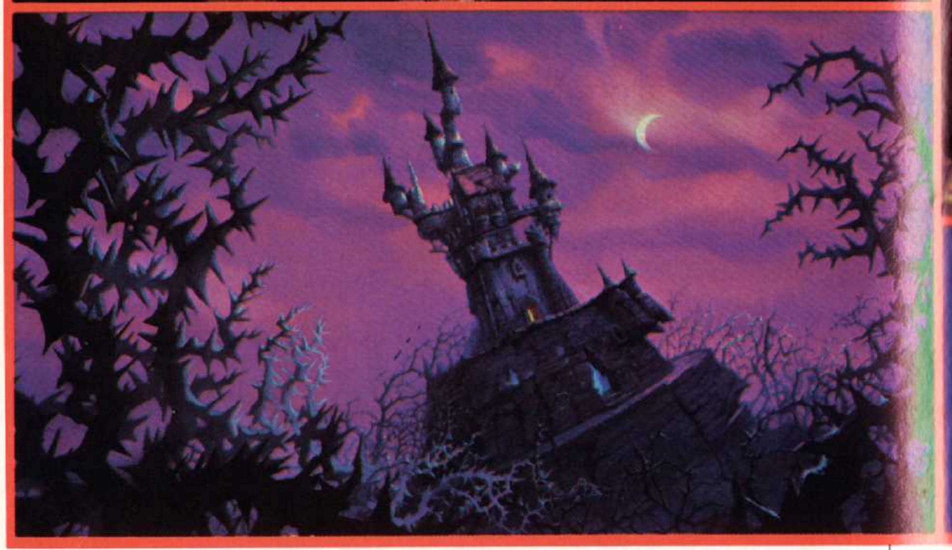


Illustration: Frank Riley Photos: Andrea Brizzi

By William Michael Brown

Looking for something new at your local arcade? Try taking up your magic sword against an army of wizards, dragons and giant spiders, as you search an enchanted castle for an imprisoned princess... or join Zeke the Zookeeper as he tires to hem in a flock of animals who can eat right through the walls of their cages. Put on your pith helmet and dodge charging rhinos while pounding jungle drums sound across the Congo... pilot your spaceship back to Earth from beyond the orbit of Neptune, fighting off agents of the alien Ideoclan Empire all the way... or take a dive into your own kitchen sink and team up with a friendly cleaning lady to do battle against brushes, bugs and bubble-busting razor blades.

If what we saw at the recent AOE (Amusement Operators Expo) trade show is any evidence, you'll be playing games like this—and more—by the end of the summer. And whether it's *Congo Bongo* or *Bubbles*, this summer's games have more whimsy and originality, more complex graphics and game play, and more exciting sound effects than you've ever seen before. Both game design and game technology are taking quantum leaps—and there are even signs that arcade operators will soon be able to offer you new games almost as fast as your home game system lets you change cartridges.

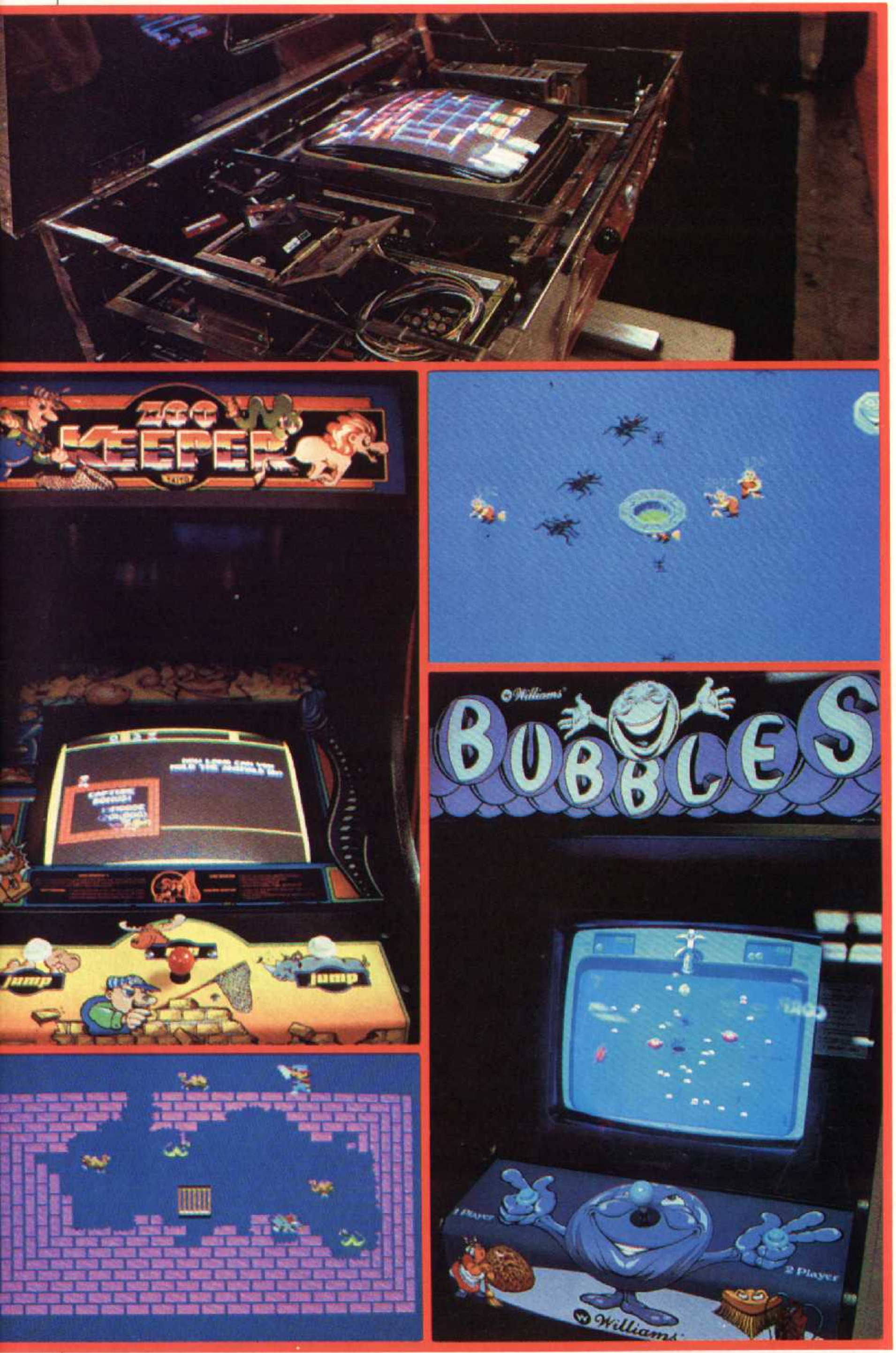
Laserdisc Fantasy

All those trends come together in the most spectacular new game we saw at the show: Starcom's revolutionary *Dragon's Lair*, a computer-controlled laserdisc fantasy game concerning dragon-slayer Dirk the Daring and his adventures in an enchanted castle.

With its splendid full-color movie graphics (the work of ex-Disney animators) and a highly realistic stereo soundtrack, you'll find that playing *Dragon's Lair* is a lot like stepping into the shoes of the main character in, say, *Conan the Barbarian* or *Dark Crystal*. And, in a way, that's exactly what you're doing.

Dragon's Lair isn't the first laserdisc arcade game—that prize goes to Sega's *Astron Belt*. But where *Astron Belt* used live-action movie film recorded on laserdisc to project realistic backgrounds behind the usual computer-generated game figures, everything in *Dragon's Lair*—every character, sound, scene, situation, game action and possible outcome of those actions—is depicted using animated film techniques. The laserdisc is then put under the control of a computer which, keyed by the game's standard arcade controls, decides when and in what order the scenes on the disc will be played.

The result is an arcade game that looks and sounds exactly like a feature-length animated film—but one you can control at almost every step along its complex storyline. Using the front-panel joystick and action button, you can tell the



DRAGON'S LAIR screen graphics and cabinet (inset preceding page and far left); new BURGERTIME conversion kit from Data East (top right); Brick screen from Taito's ZOO KEEPER (center); BUBBLES' cast of creepy-crawlies.

computer when, how and in which direction Dirk should fight or flee the enemies he meets, leap over or avoid chasms and falling rocks, etc. The speed and skill with which you make each crucial decision determine what new scene the computer will generate, and you'll know instantly whether you've helped Dirk survive to face another challenge or sent him to a horrible death.

Game play takes a little getting used to; since all the scenes are prerecorded, there's no constant control of the central character. But *Dragon's Lair* is far from simple or easy to beat. We're told that the final version of the game will contain 42 episodes and over 1,000 life-or-death situations—many with multiple solutions branching away from different points in the same scene. In one scene in the demonstration version, for instance, Dirk enters a wizard's laboratory and confronts an ominous black kettle with smoke curling out of it. Hit the action button the instant Dirk appears in the lab, and he'll just walk through it unharmed. If you're not quite so hasty in pushing the button, Dirk rushes up to the kettle and puts a lid on it, stopping the smoke. But wait too long and it's curtains for your man—the evil wizard materializes out of the smoke and zaps Dirk.

Lair II: The Sequel

And if *Dragon's Lair* is the first video game to *look* like a movie, it's also the first video game to be *treated* like a movie. The first *Dragon's Lair* machines should start appearing in the arcades around the end of this month—but three months later (and every three months thereafter), Starcom plans to release an entirely new game in kit form that arcade operators can just plug into the old *Dragon's Lair* cabinet. Since that's exactly what movie theater owners do when they change their feature films, there are probably lots of players wondering if they ought to start bringing popcorn to the arcade. Our advice is to forget it; you'll be too busy playing to eat.

The ability of *Dragon's Lair* to be rapidly converted into a brand new game is also part of the future of more conventional arcade titles. For about a year now, conversion kits like *Mr. Do* have become increasingly popular with operators—mainly because they allow the operator to convert an old, less popular title into an entirely new game without having to buy an expensive new cabinet and video monitor as well.

What that means for players is a lot more variety—and in the case of "hot-rod" conversion kits like *Pac-Man Plus*, a lot more challenge—in a day at the arcade. Not all the conversion kits will be original (and some of the original ones we've seen are pretty lame). But whether you like every new kit game or not, their popularity with operators means you can expect to see many more of the old games you've grown familiar with replaced by such hit conversion titles as Data East's whimsical *BurgerTime* and Stern's challenging *Lost Tomb.*

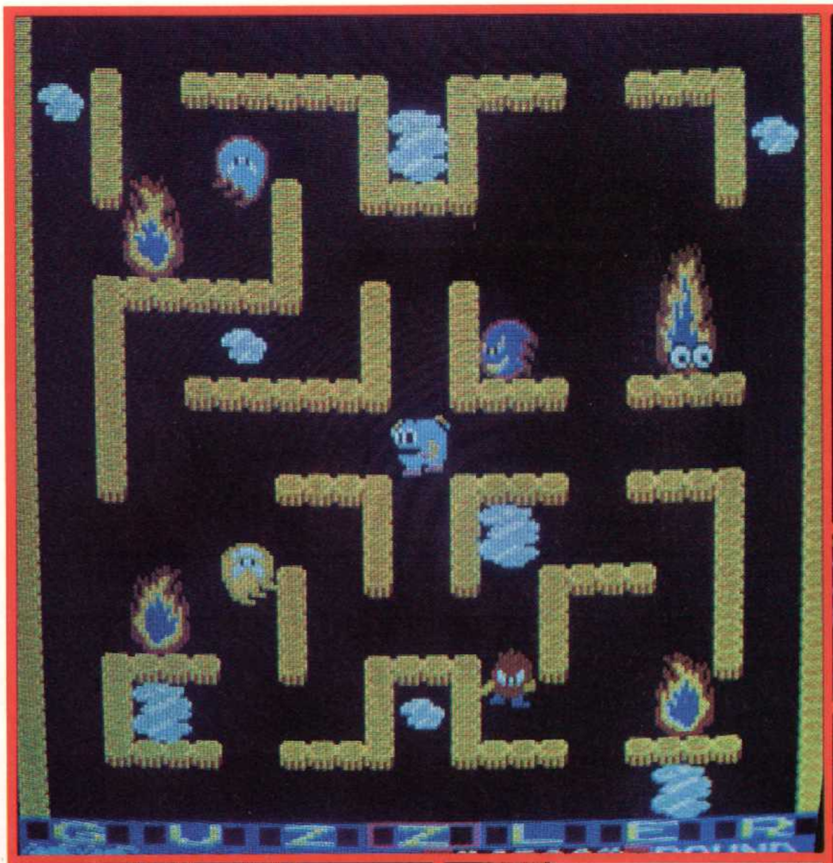
Of all the brand new kit titles we saw, probably the best is Centuri's *Guzzler*—a comical maze game starring a little guy who is not much more than a fat, mobile water tank. Up against a fast mob of angry demons, flashes and fireballs, his only defense is to drench them with some of his limited supply of water. The game's graphics and sounds are outstanding, and there's even a special feature that lets you win a free game whether you scored high or not.

Humorous games like *Guzzler* also compose a large part of the non-kit releases from other major manufacturers. Another goof-fest was Williams' *Bubbles*—a game that literally includes the kitchen sink. As the star Bubble, it's your job to rid your baby-blue sink of roaches, spiders, grease and grime—all without falling down the drain or running into dangerous razor blades (you're ably assisted every now and then by a little cleaning lady who cruises by perched on a broom). *Bubbles*' game play is very challenging after the first couple of screens, and the graphics—except for the monotonous emphasis on blue—are superb.

Meet Zeke and Zelda

Taito's gorgeous, multiple-screen *Zoo Keeper* features Zeke and his girlfriend Zelda—a cute couple made unhappy by a pack of animals who are trying to eat their way out of Zeke's zoo, and by yet another love-struck, coconut-throwing monkey who's run off with Zelda. The game play is nicely graduated, allowing the player some real feeling of accomplishment before the rough stuff starts, and the constantly alternating Brick, Ledge and Elevator screens are a feast for the eyes.

Not to be outdone, Bally/Midway has *two* games with a punchline: *Wacko* and *Mappy*. In the first, you're a shmoo-like alien in a space saucer who has to gun down enemy mutants in pairs; in *Mappy* you're a mouse, pursued by a pack of cats as you steal various strange objects—including a microcomputer and the Mona Lisa—from someone's home. *Mappy* doesn't make a lot of sense—the game also involves doors and trampolines with odd effects—but it's so challenging to play and graphically charming that sense doesn't seem to matter much. And if *Mappy* is just all around cute, everything in *Wacko*—from Kaptain Kroozer's teensy saucer to the game's truly bizarre cabinet—is, well, wacko. We found *Wacko* a nice, fast ride for the money, and while the color scheme (weird blues and pinks mostly) and odd characters may not be to everyone's taste, we think *Wacko* deserves some kind of award on the basis of design originality alone.



MUNCH MOBILE

MAD PLANETS
MAD PLANETS

=2 WAVE=03
WARP
WACKO
K-OLA
rmaid
ZAP!
KROOZ
ZAP!

Clockwise from top left: Centuri's GUZZLER goes up against fireballs; MERMAID logo and screen from Konami's DEFENDER-like JUNO FIRST; wacky WACKO cabinet; Bally/Midway display; Gottlieb's MAD PLANETS; Centuri's MUNCHMOBILE.

We were much less pleased with Centuri's *MunchMobile*, a weird driving game in which your car has long arms that reach out to grab money, gas and snacks that appear along the roadside. Controlling the reaching arms is harder than Chinese algebra, and the game's graphics and overall concept left us cold.

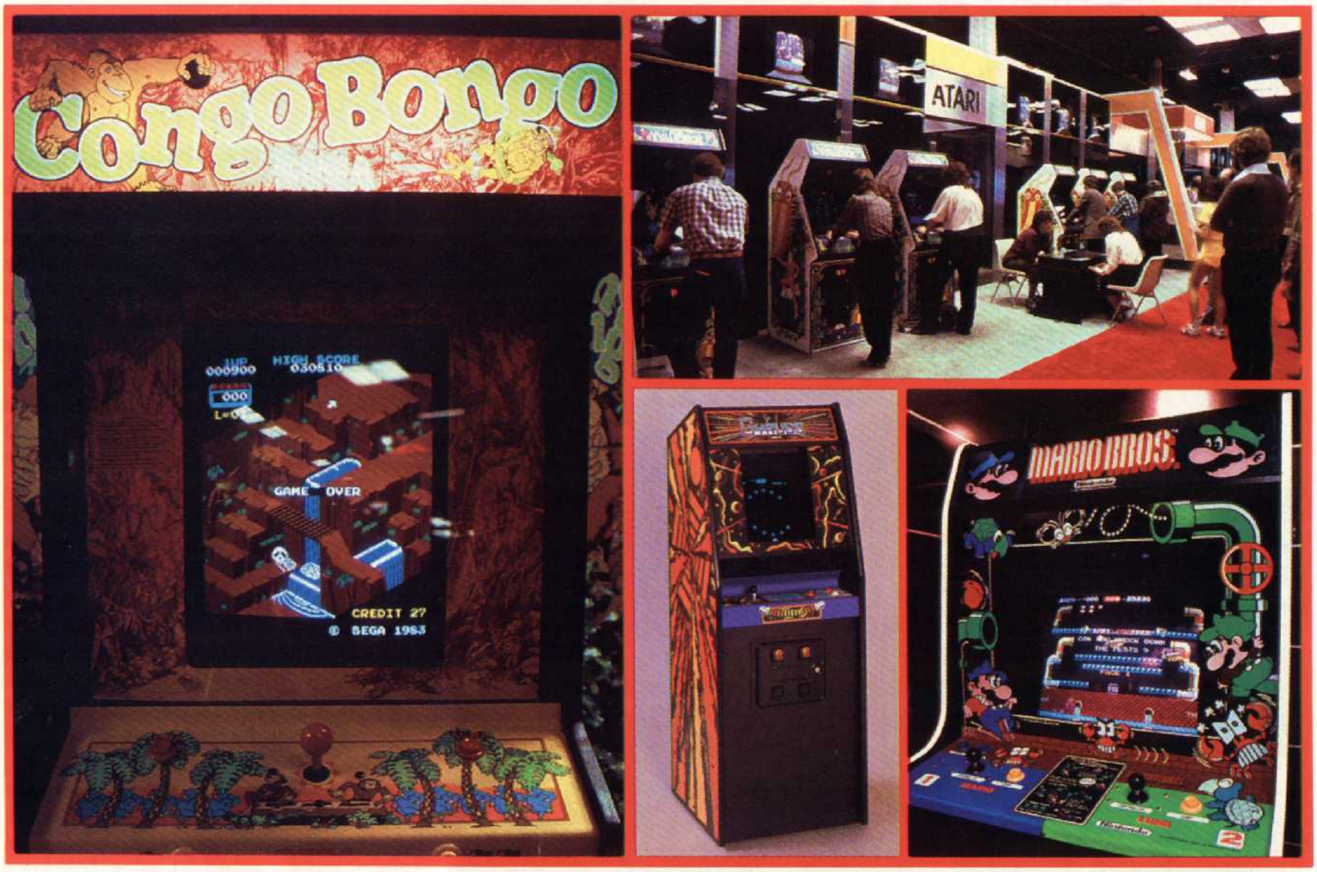
Another loser is *Kozmik Krooz'r*, also from Bally/Midway and based on the same central character as *Wacko*. It comes in a monster cabinet with a *Tron*-like joystick, and while it includes a fairly nice 3-D effect, it just isn't as interesting, funny or full of life as its cousin. Standard space shoot-em-up action and not much else.

In space games, the overall accent is on better graphics and tougher play instead of originality. Probably the only truly original space game we saw was Cinematronics' *Cosmic Chasm*—even that wasn't strictly original, being the arcade version of a Vectrex home game of the same title. *Chasm* presents you with an enemy-occupied space station, through which you must maneuver in order to find the stations' central power pile and destroy it. Along the way you must battle swarms of alien ships, penetrate security force fields and trace a path that will give you a quick exit once the power core is blown. Players who know the home game will find that the enemy ships get much faster and smarter as the arcade game progresses, and there's a beautiful "star corridor" sequence between rooms of the stations that's reminiscent of *Tac-Scan*.

The Final Frontier

Konami's *Juno First* comes off initially as a kind of vertical version of *Defender*, but with most of the game play features of its cousin (blistering rapid fire, picking up survivors, etc.) intact, and with brilliant vector-scan graphics, we think most *Tempest* and *Defender* fans will find it engrossing. Centuri's *Gyruss* offers much the same serpentine attack formations as the ever-popular *Galaga*, along with the appeal of fine graphics and a storyline that has you fighting your way back to Earth from Neptune—a storyline that, for once, is actually played out as part of the game, instead of tacked on to explain the weird junk you're seeing. Gottlieb's *Mad Planets*, which pits your spade-shaped spaceship against dozens of careening heavenly bodies, sports extremely realistic planet-surface graphics and a set of explosion sounds that are brutal enough to rattle your back teeth. It, also, is not long on originality—*Asteroids* experts ought to find themselves beating it pretty easily.

Two other games score high with us: Sega's *Congo Bongo* and Rockola's *Mermaid*. *Mermaid* is a



kind of sail-powered *River Patrol*—with so many additions that it's really an entirely new concept. Nosing your tiny one-master out of the harbor, you're instantly in a race for the next berth. Along the way, you must change headings and tack, hook up with fast breezes and currents that will help your race time and avoid land masses, choppy seas and over-friendly dolphins that can capsize your boat and turn you into shark bait. *Congo* casts you as a pith-helmeted explorer in search of the elusive gorilla Bongo—and you've got to deal with mischievous monkeys, falling coconuts, snakes, scorpions and deadly rhinos along the way. The game's four screens are probably the most beautifully designed we saw, and the game makes excellent use of a complex 3-D illusion.

Turtle Whacks

A couple of games that seemed promising before the show seem to us to be headed for arcade dudsville. Nintendo's *Mario Bros.*—that company's latest in a lengthening series of *Donkey Kong* spinoffs—stars good old Mario and his long-lost (or recently invented) brother Luigi as maintenance men in the basement of an apartment building. Various "pests," including turtles (What's so nasty about turtles? And what are they doing in an apartment building's basement?), come crawling out of water pipes in the ceiling and along the basement's three levels of flexible flooring. Mario and Luigi have to clean up the place by first punching the flexible floor under each turtle (to turn it on its back and immobilize it), and then jumping up to the same floor and kicking the turtle off.

Although the game has a great sense of humor (when outside their shells, the turtles run around in very modest boxer shorts) and terrific graphics, the two-part turtle-dumping gameplay is *so* hard that we never got past the first screen—even after 60 free plays at the show. We wonder if anyone in an arcade will be willing to shell out enough quarters to see the game's second—and succeeding—screens. We also wonder if *Donkey Kong* fanatics are really that hungry to see yet another *DK*-based game.

Our other pick dud is the first arcade-to-home translation: Bally/Midway's *Journey*. The game's downright boring and simplistic graphics are matched only by its dull premise: sending the members of the group through various mazes and other obstacles to collect their instruments. *Journey* is not only not as good as the home game *Journey Escape*—it doesn't even come up to the graphics and play standards set by other Bally/Midway games. We hate to say it, but coming from the makers of *Pac-Man*, *Tron* and *Wacko*, *Journey* is quite a letdown.

Of course, that's just our opinion. You'll have lots of chances to form your own about these and the other games we don't have space to cover in depth here. Among them are Taito's new science-fiction driving game *Change Lanes*; Atari's *Food Fight*, *Xevious* and *Black Widow* (all three are already out in many arcades); Stern's *Pop Flamer*; and Rock-Ola's *Rocket Race*. Whichever game you eventually settle on as your main favorite, the message is clear: There'll be plenty of hot new titles to choose from this summer.☐

CONGO BONGO features a diagonal 3-D effect and beautiful screens; part of Atari's huge show display (top right); Nintendo's MARIO BROS. introduces Luigi; Centuri's new space chase, GYRUSS (center).

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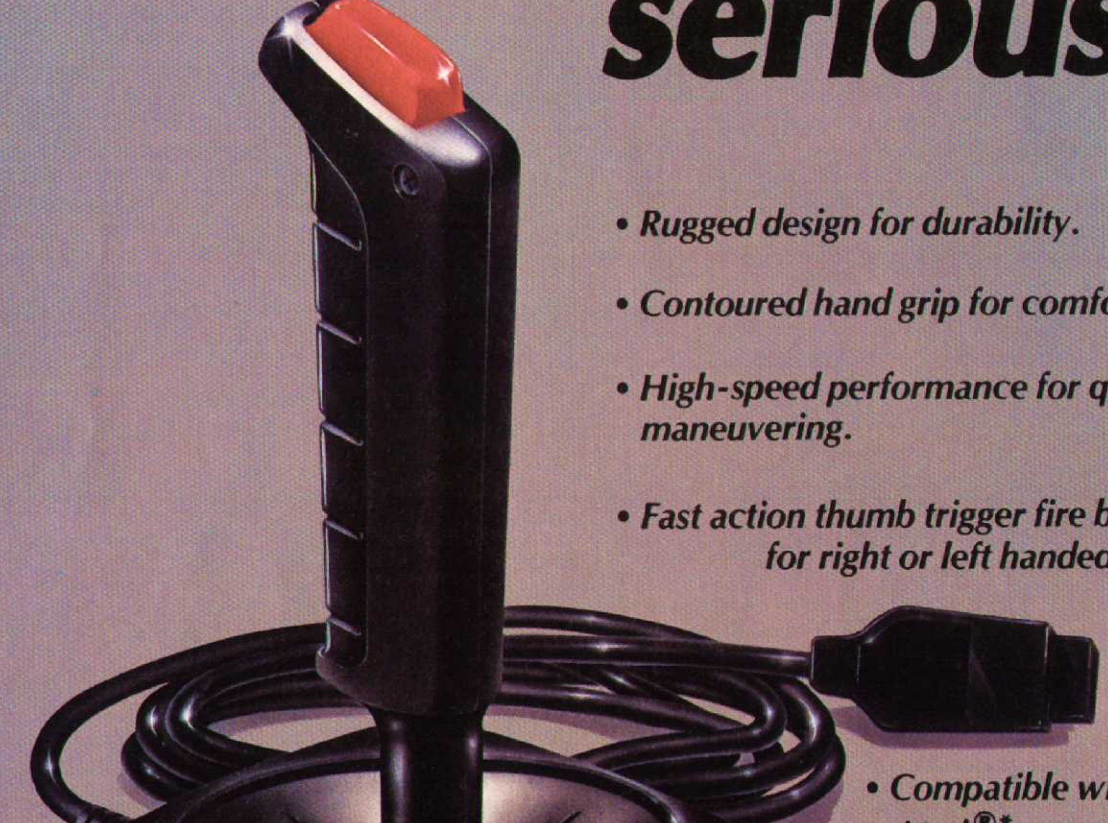

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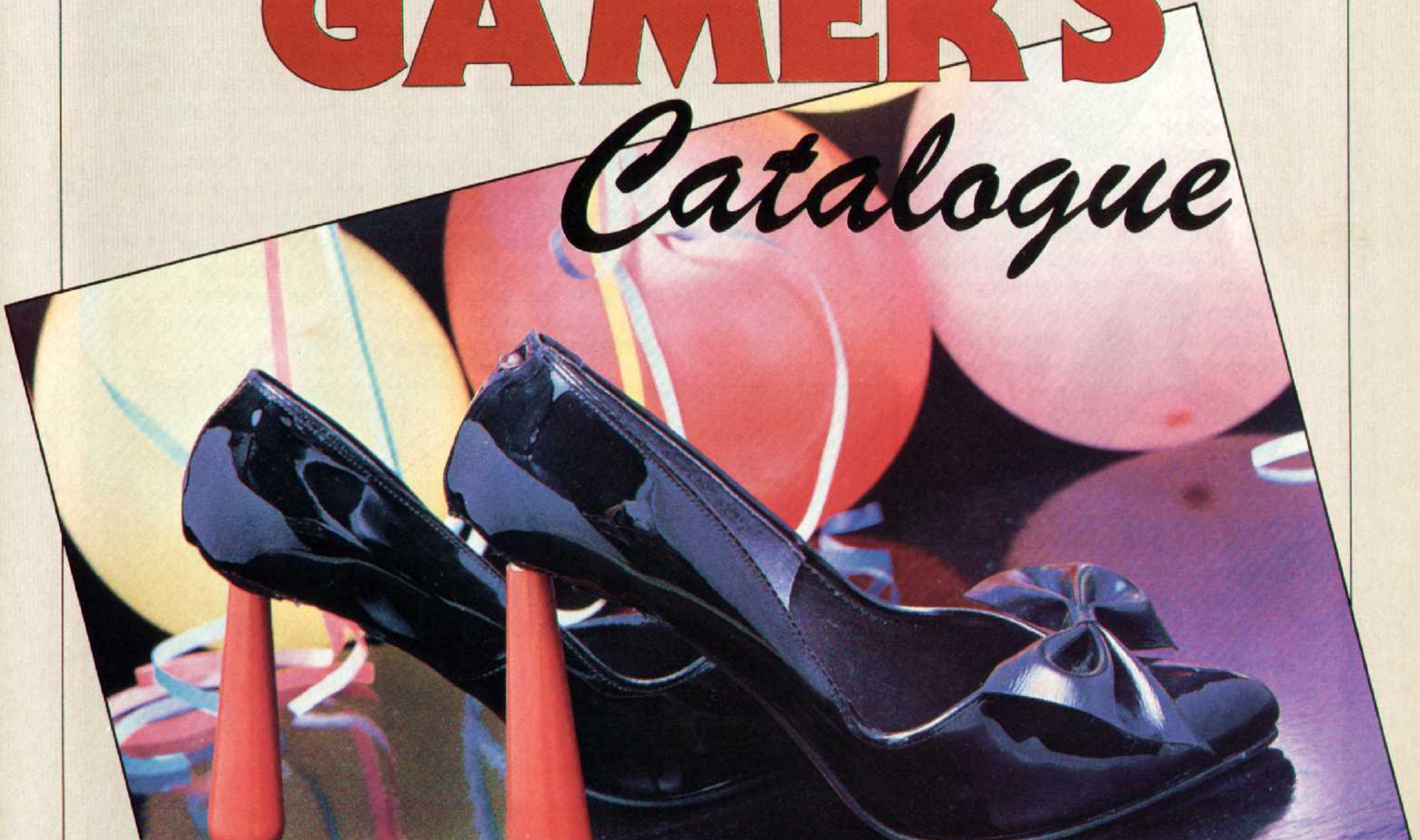

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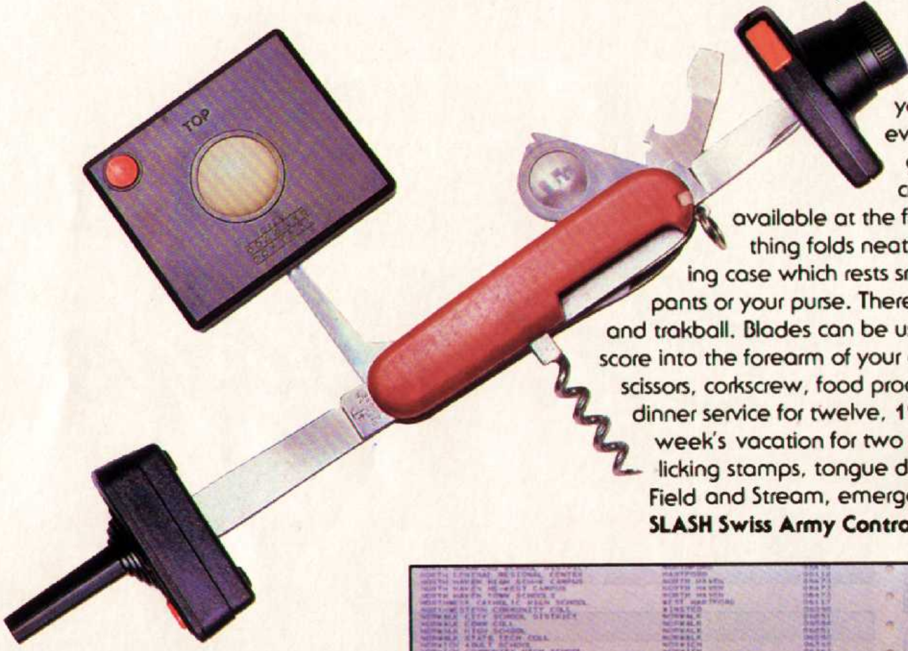
Photos: Lex Henkels & Doug Price

Swiss Army Controller



A must-have for all serious gamers and outdoorsmen, this multi-load knife allows you to be prepared for any eventuality. No matter what game you're challenged at, you can have the necessary controller available at the flick of a switchblade. And everything folds neatly back into the compact carrying case which rests snugly in the pocket of your pants or your purse. There's a joystick, paddle controller and trakball. Blades can be used to carve your highest score into the forearm of your opponent. Also available with scissors, corkscrew, food processor, emergency oil can, dinner service for twelve, 19-inch color television set, week's vacation for two in Aruba, moist sponge good for licking stamps, tongue depressor, year's subscription to Field and Stream, emergency galoshes and cigar umbrella.

SLASH Swiss Army Controller $99.95

Bathroom Accessories

Hi-tech is the name of the game and nothing says it as well as these computer bathroom peripherals. Done in the subtlest of green-on-green, they give every bathroom that little touch of je ne sais quoi. In addition to being tasteful, they are also educational. Brush up on your knowledge of programming while shaving or applying makeup. Available in several program types including Household Budget, Financial Package, Word Processing and Checkbook Balancing. Once you've used these items, nothing again will please you as much as blowing your nose into your household budget program. Besides BASIC green, also available in Visitalc white or COBOL blue. For tissue, please specify soft, Microsoft or Applesoft.

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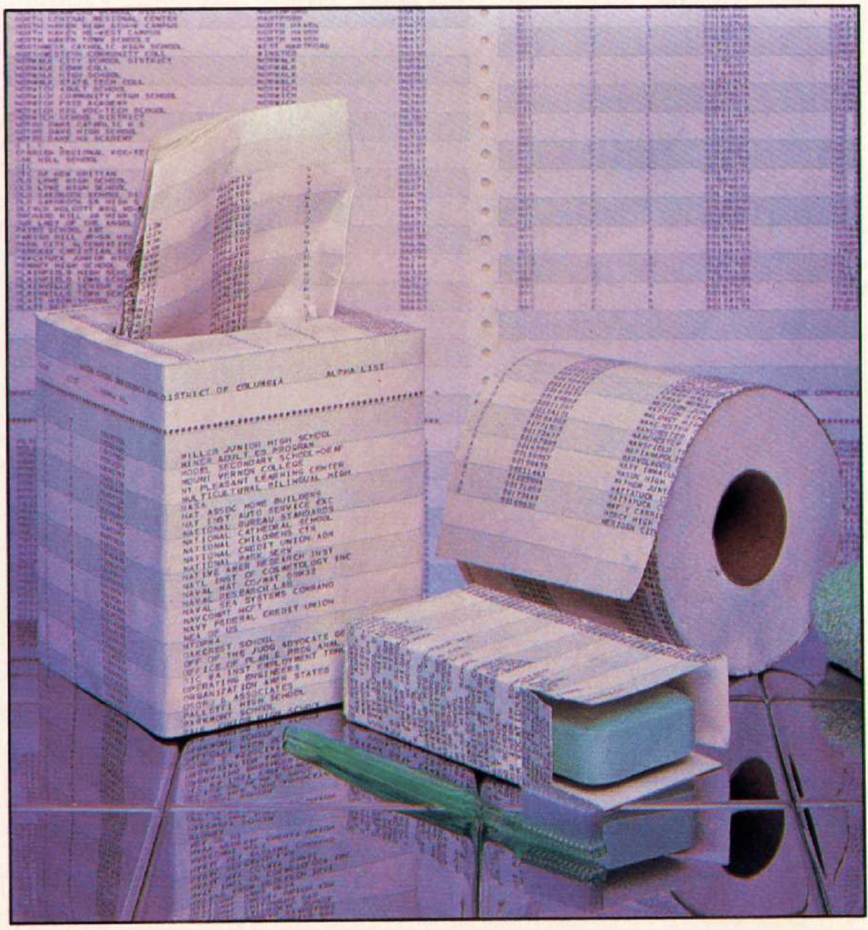

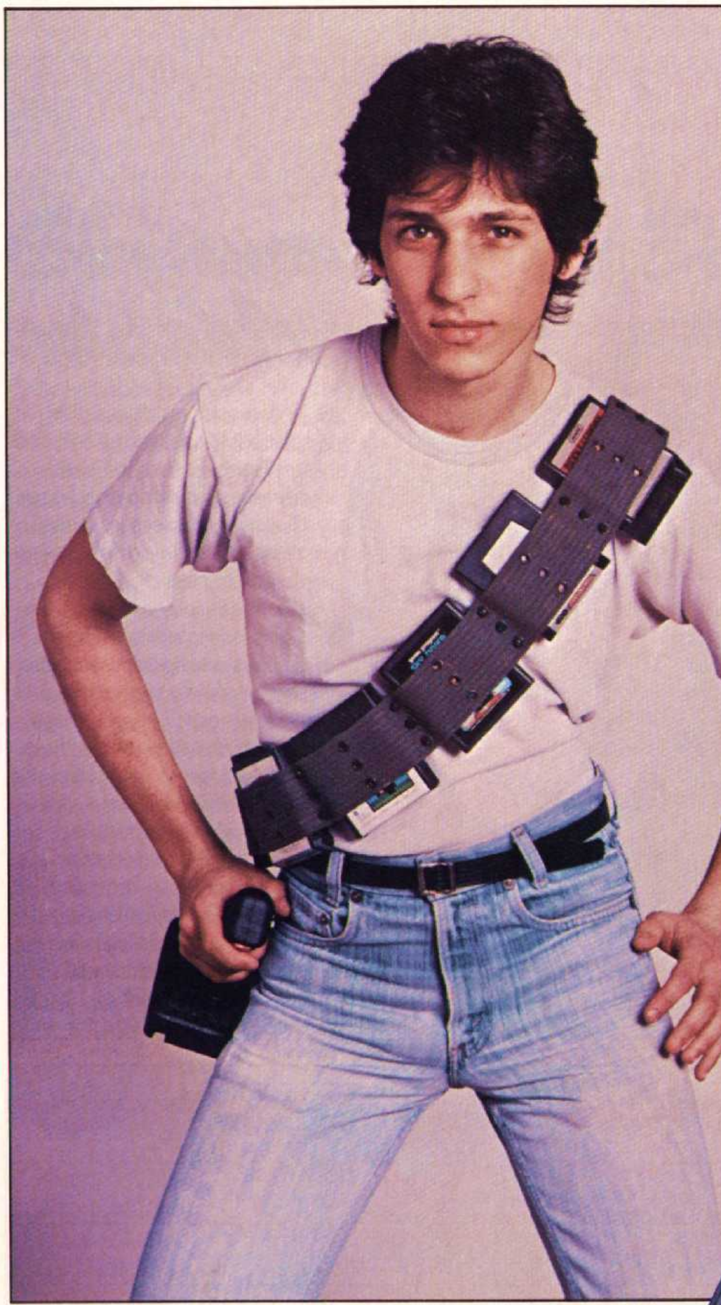

Cartridge Belt

Admirers of Pancho Villa will be especially pleased with this handy cartridge carrier. Saunter out at sunset and challenge any hombre to a fight. Designed to carry as many as five cartridges of up to 8K, this chic little item adds panache, machismo and pizazz to even the drabbest of wardrobes. Best of all it is compatible with cartridges from virtually any system out today. With a little practice you should be able to "Draw!" in under 10 seconds. Available in handsome khaki only, but can be spruced up with a little imagination and a brooch or scarf placed just so. One size fits all. Sombrero and moustache extra.

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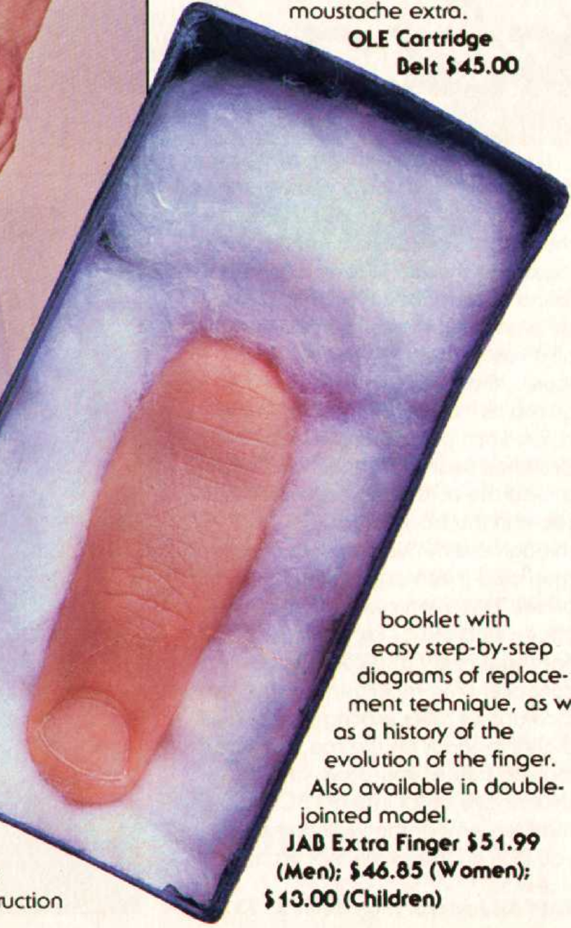
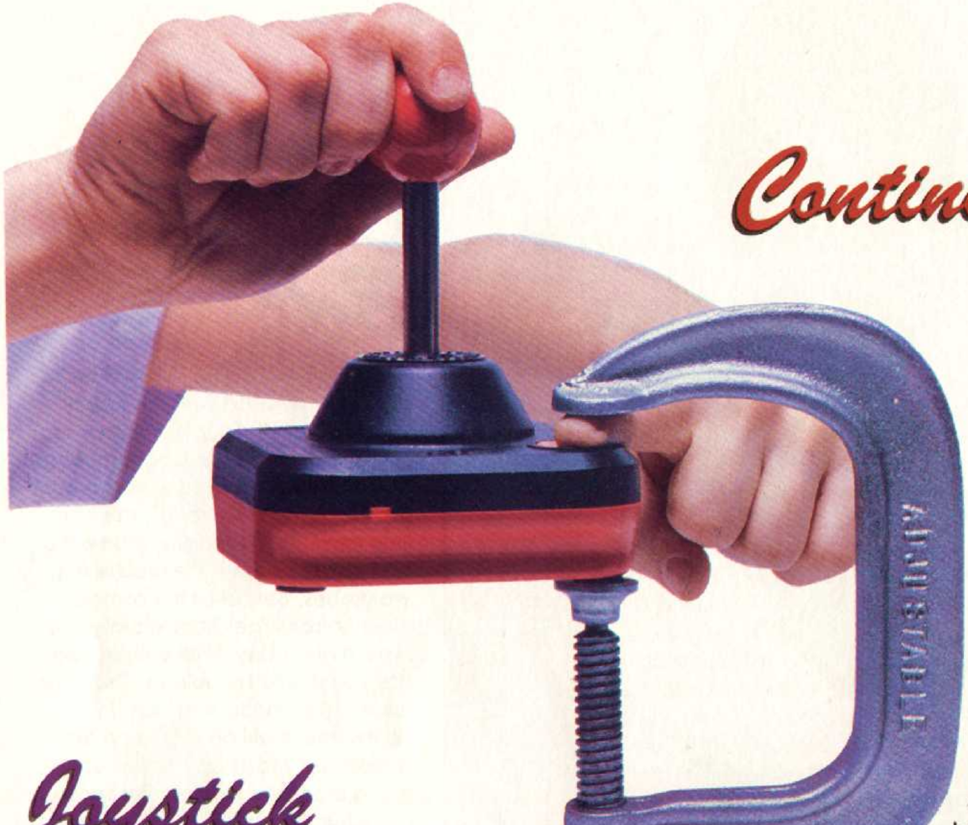


Extra Finger

Give someone you love the finger. Made of a durable polyester and protoplasm weave that makes it amazingly life-like, this spare finger actually bleeds if pricked. Designed to replace your own finger if something goes wrong during a hot game, it can also double as a bookmark or be used to plug up leaking dikes. The synthetic nerve fibres built into every finger make it sensitive enough to perform even the most delicate of firing operations. Paring the nail regularly is recommended for the best results. Available in both male and female models, with or without a manicure. Children's sizes also available though they are much smaller. Included is complete instruction booklet with easy step-by-step diagrams of replacement technique, as well as a history of the evolution of the finger. Also available in double-jointed model.

JAB Extra Finger $51.99 (Men); $46.85 (Women); $13.00 (Children)



Continuous Fire Adaptor

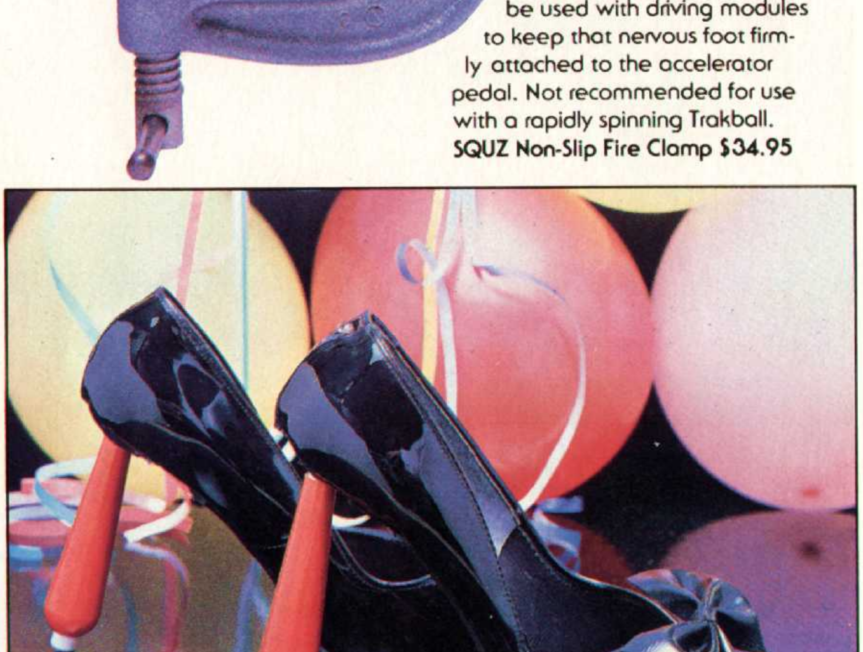
Vise and vonderful, this specially designed, sleek and cumbersome device helps prevent that annoying finger slippage problem so prevalent among gamers. Simple to connect and easy to use, the heavy metal clamp is also completely portable. It requires no electrical hookup and is safe enough for even the youngest players to use, though not to swallow. Rugged enough to withstand the pressures of any game, the clamp is also compatible with every system and can be used with driving modules to keep that nervous foot firmly attached to the accelerator pedal. Not recommended for use with a rapidly spinning Trakball.

SQUZ Non-Slip Fire Clamp $34.95

Joystick High Heels

It's no heels barred with these practical yet elegant haute couture shoes. Made of the finest patent leather, these shoes are perfect for that evening at the theater followed by a hot round of Defender. Not only do they do wonderful things for your legs, they also vastly improve your ability to score. And, best of all, no surgery is required to hide those unattractive cords. Each pair comes with specially designed seamed panty hose. Simply thread the cord up through the hollow seam in the back of each leg, up through the neckline of your dress and then plug it into any convenient wall outlet. Extension cords for long engagements extra. For those who prefer flat shoes, they also come in disc controller-style moccasins and trakball lace-ups for roller skating fiends. A digital readout on the toe keeps a running tally of your score and the shoes have 6K of internal ROM. So they remember the way home even if you don't. One size either fits all or doesn't.

TAPTAP Joystick High Heels $125.00



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JNRK No Frills Games $1.29/lb

Stepping out with the PROMQUEEN

By David Thomas

Even if you were never invited to a single high school dance . . . even if you were voted Least Popular in your class . . . You can still be—or rather, own—a Promqueen of your very own. And what can you do with a Promqueen? You can make your own cartridges, that's what. That's right. Disks and cassettes are no longer the only media available to you for storing your own programs. With the Promqueen and a VIC-20, you can burn your own EPROMs and guard your games from theft. You don't have to have mastered machine language and you don't really need any sophisticated, expensive equipment either. And best of all, this is one Promqueen you don't have to buy a corsage for.

Even if you don't have a computer there are lots of ways to store information. You can put it in a file cabinet; you can stick it on a bulletin board; you can put it on your refrigerator door under a magnet shaped like a piece of fruit. All these ways have their advantages and disadvantages, and the method you choose will depend on what the information is and what the circumstances are when you want to retrieve it.

If you are a computer owner, you know that your machine has a more limited variety of ways to store information. You can put it on cassette or you can put it on disk. You can also go to the store and buy a cartridge which someone else has put the information on. Now, however, there are several products on the market that allow you to make your own "cartridge"— the EPROM, for *E*rasable *P*rogrammable *R*ead- *O*nly *M*emory.

Video game makers like to put their games on EPROMs because they are virtually impossible to copy, unlike tape and disk. The home computer hobbyist might have other reasons for storing programs on an EPROM, not the least of which would be just to see how it was done. But the EPROM device I tested, the Promqueen made by Gloucester Computer Bus (One Blackburn Center, Gloucester, MA 01930) can do more than simply "burn" EPROMs, as programming one is called, and it's designed specifically to fit the VIC-20. In fact, if you own a VIC-20 and you'd like to increase your computer's versatility, the Promqueen is a good way to do it.

Memory chips come in many different incarnations. One of the most common types of memory is RAM (Random Access Memory). RAM serves as a computer's workspace. Naturally, the more RAM you have, the bigger your programs can be. When you sit down and type a program into your computer, the computer saves each line in RAM as you go. When you list the program, the computer reads the contents of its RAM back to you.

The Saving Grace

To save your program on disk or tape, the computer sends a copy of its RAM to the tape recorder or disk drive. It is then safe to turn the system off (which will obliterate the RAM), because later you can always copy the program back into the RAM from the tape or disk.

Now suppose you want to play a game and your system accepts game cartridges. You plug in your favorite game cartridge, turn on the system and instantly your game is

Sculpture: Adam Kurtzman Photo: Chris Moore

running. No loading time is required because the computer reads and executes the program directly from the ROM (Read-Only Memory) in the cartridge. (You may have heard them called ROM cartridges.) ROM comes preprogrammed from the factory. Unlike RAM, the programming of a ROM chip is not affected when the power is switched off. In fact, it's not affected by anything else either, and hence the name "read-only" as opposed to RAM which can be "rewritten".

One ROM To Read

Cartridges are nothing more than ROM chips with the games preprogrammed in, and this programming cannot be altered. (There are things that can affect the ROM chip. For example, we do not recommend that you plug in a game cartridge upside-down, or while the system is on.)

PROM (Programmable Read-Only Memory) chips are initially empty, but can be user programmed (once!) and then they act like ROM. The act of programming a PROM is called "burning". Here's why. The chip comes from the factory with all bits kept "on" by a fusible link

The do-it-yourself cartridge kit

within the chip. Programming the chip involves selectively "burning" certain locations with a high voltage, thereby turning them "off", leaving the unburned locations "on".

EPROM is simply an erasable version of PROM. Erasing an EPROM, however, is not as easy as erasing a blackboard. EPROMs are designed to restore themselves to an empty (all "on") state when exposed to concentrated ultraviolet light. Note the word "concentrated". Taking an EPROM out to get a tan in the midday sun or to the nearest disco with "black lights" won't work. What *will* work are specially designed EPROM erasers, which work like miniature ovens. Twenty minutes in one of these babies and even the most stubborn EPROM will lose its mind! EPROM ovens cost about $50.

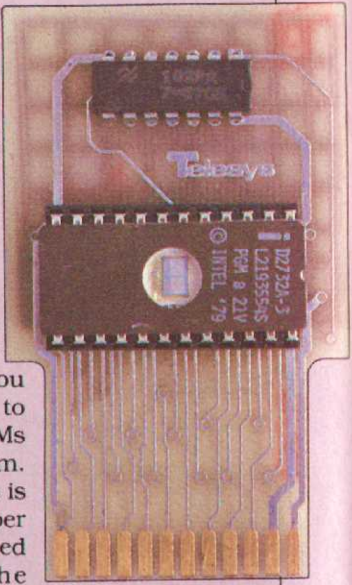
Instant Program

EPROM, like tape and disk, is a computer storage medium. Since all information on an EPROM is immediately accessible, no loading time is required, and unless you are worried about software piracy this is really the only advantage EPROMs have over tape and disk. EPROMs range in size from 1K to 8K, and in price from $3 to $25, depending on what you want and where you look for it. Don't be discouraged by the apparent small capacity of EPROMs. One program can easily be stored on more than one EPROM.

The Promqueen is a VIC-20 cartridge which gives the user the power to manipulate two popular EPROMs, the 2716 (2K) and the 2732 (4K). It's easy enough to use once you get the hang of it, and its $200 price is reasonably competitive in the market of PROM programmers. In addition to burning EPROMs, the Promqueen allows the VIC-20 owner to have access to the computer's memory.

HEXing Your Muscles

The unit has 4K of RAM which, while you're not programming EPROMs, can be used to expand the VIC's memory by 4K, although there are cheaper ways of doing the same thing. The Promqueen and its accompanying HEXKIT utility program allow EPROMs to be read, duplicated and modified, and let you burn your own BASIC or machine language programs into EPROMs and plug them into a special "ROM card". This plugs directly into the VIC's expansion slot and, voila—your own game cartridge! Currently available from Gloucester Bus are two types of ROM cards. The 8K ROM card ($20) is a bare green card which houses up to two 2732s. The 16K ROM card ($40) comes with a protective plastic case and houses up to four 2732s.

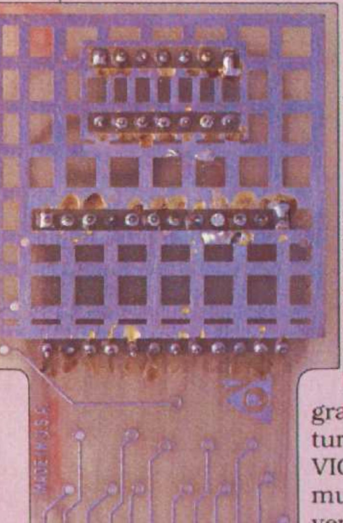


The 16K card also comes with a blank 2732 chip to get you started. No ROM card is currently marketed for 2716s.

While the Promqueen is designed for the VIC-20, you can use it to make EPROMs for any system. All it requires is a 24-pin jumper cable connected between the socket on the Promqueen to the EPROM slot on your computer. The Promqueen can MIMIC (or simulate) an EPROM, allowing you to debug your program before burning the ROM chip. On the VIC-20, of course, no jumper cable is required, and you don't have to put the Promqueen in MIMIC mode, which takes only the flip of a switch.

ZIF-a-dee Doodad

One final feature of the Promqueen, and of no less importance than the others, is its socket. As an electronics hobbyist, I've dealt with my share of ICs (integrated circuits), and all too often, when I try to unplug one manually, I get stabbed in the finger. The PQ socket, however, called a ZIF (Zero Insertion Force) socket, has a unique patented design which allows safe, easy insertion and



removal of ICs without tools.

The HEXKIT Utility

But burning EPROMs is only one thing the Promqueen can do. Thanks to its HEXKIT program, it can turn your VIC-20 into a much more versatile computer. HEXKIT is a utility program, like a listing program or a word processing program. It's designed to let you perform a number of specific tasks, with a minimum of instructions to the computer.

The most useful function of HEXKIT—and certainly the most versatile—is its "hex editor." This plugs you right into the VIC's memory—you can examine the contents of the VIC's memory, mark your place, page through the memory, search for certain contents there, type in new contents either as hexadecimal, decimal or ASCII values and even do massive memory transfers or block moves.

Hands-on Practice

Do you have to know hexadecimal (base 16) machine code to do all this? Not really—only a minimal understanding is required, thanks to the excellent documentation accompanying HEXKIT. But if you have a hankering to learn machine language, and you only own a VIC-20, the Promqueen will allow you to have hands-on experience with your machine language programs. And the ability to get right into the VIC's memory will greatly enhance your understanding of your computer—and computers in general—as well as afford you many practical advantages. To a large extent it will enable you to "customize" the little VIC.

To make your own cartridges, HEXKIT has a BURN routine. This (a) checks that the target chip is empty to begin with, (b) burns slowly to minimize risk of error and (c) verifies the burn and reports the exact location of each error. I have found it to be very reliable, and encountered errors only when I made a mistake myself, although the documentation leaves a lot to be desired.

Short Cuts

One aspect of HEXKIT's BURN routine is an AUTO START header. When a ROM chip is loaded, the machine looks for instructions in machine language —the series of number codes that tells the computer what to do. With the Promqueen, however, you can program your ROM chip in BASIC. HEXKIT will add an instruction to the top of your program —in machine language —that says, essentially, "This is a ROM chip in BASIC. Proceed to the beginning of the BASIC program and RUN."

(The AUTO START also disables the STOP key. Until you burn the final version of your program into the EPROM, however, it would be a good idea to re-enable it. This can be done by adding POKE 808,112 somewhere in the BASIC program.)

One final comment on HEXKIT: If you're easily distracted when you're programming, watch out. Some functions change the screen background color whenever something significant happens, and there are sound effects, too. A paragraph in the manual explains, "In general, the noises made are 'boop' for editor options, 'beep' for the first digit of a hexcode entry and 'bip' for the completion of any entry or task." It also says, ". . . you'll hear the auditory feedback—raspberry [a Bronx cheer]—for an invalid keystroke." Granted, the sound effects are potentially useful (like, if you'd rather not look at the beautifully colored 20 column display) but I don't see the point. Perhaps I just wasn't in the mood. Anyway, I thought that a Promqueen user would probably have a long enough attention span that pretty colors and cute sound effects wouldn't be necessary to keep him interested. That's just my opinion. HEXKIT is still an excellent utility.

OFF
SOCKET
ON
BURN
MODE
PROG
MIMIC
MODE
PROG
2716
EPROM
2732A
GLOUCESTER COMPUTER BUS CO., INC.
PROMQUEEN
RESET
BLOCK
5321

How to do it

As I said before, burning those EPROMs is easy once you get the hang of it, but getting the hang of it is anything but easy. For this I blame the shoddy documentation supplied with the unit. The HEXKIT hex editor's instructions are clear and precise, but the same can't be

Continued on page 95

The Promqueen, shown above, and the VIC-20, left, can combine to give you the ability to burn your own EPROMs, center. The EPROM memory chip is the guts of a game cartridge, giving you instant loading capability, although no other advantages over cassette and disk. But the Promqueen has other uses as well, including the ability to give you access to the VIC's memory.

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1 TO 3 STARS	VIDEO COMMANDER

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NAME ______________ AGE ______
NAME ______________ AGE ______

AGE ______ MALE ☐ FEMALE ☐
TYPE OF IN-HOME VIDEO SYSTEM OR COMPUTER: ______________________
PLEASE SEND ME VPA'S MEMBERSHIP PACKAGE FOR ____ MEMBERS. ENCLOSED IS A CHECK OR MONEY ORDER FOR $10.
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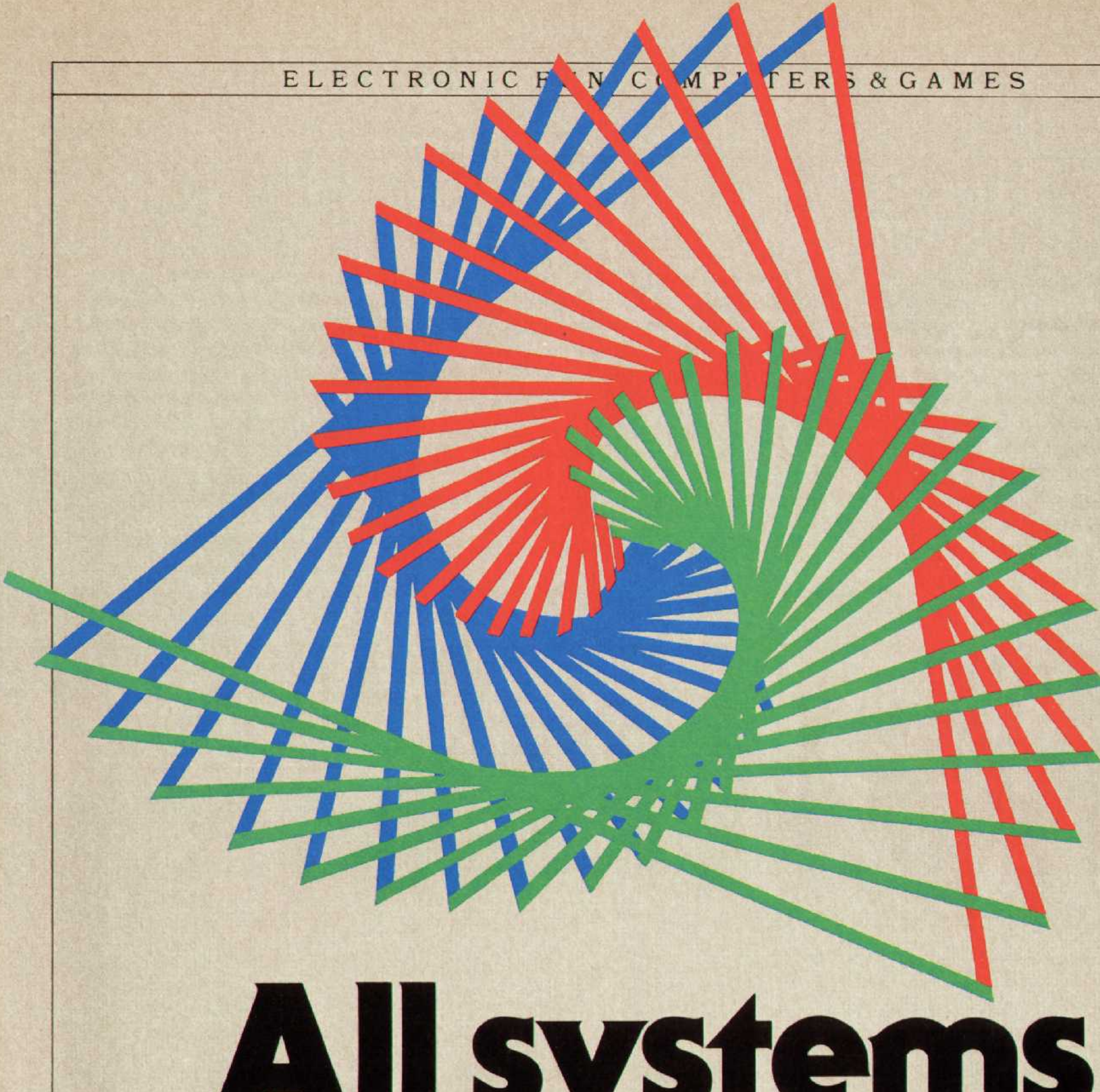


All systems LOGO

A basic course in turtle graphics

Generating computer graphics is a mystery to many people. And even those who don't find it a mystery still find it tedious, what with plotting all those points, remembering coordinates and connecting dots and all. That's one of the beauties of LOGO, which allows you to draw designs without having to memorize grids and graphs and intricate matrices. Basically, all you've got to know is the difference between a 90 degree angle and a 45 degree angle, left from right and the word FORWARD and you can create some amazingly complex patterns.

By Martin Bass

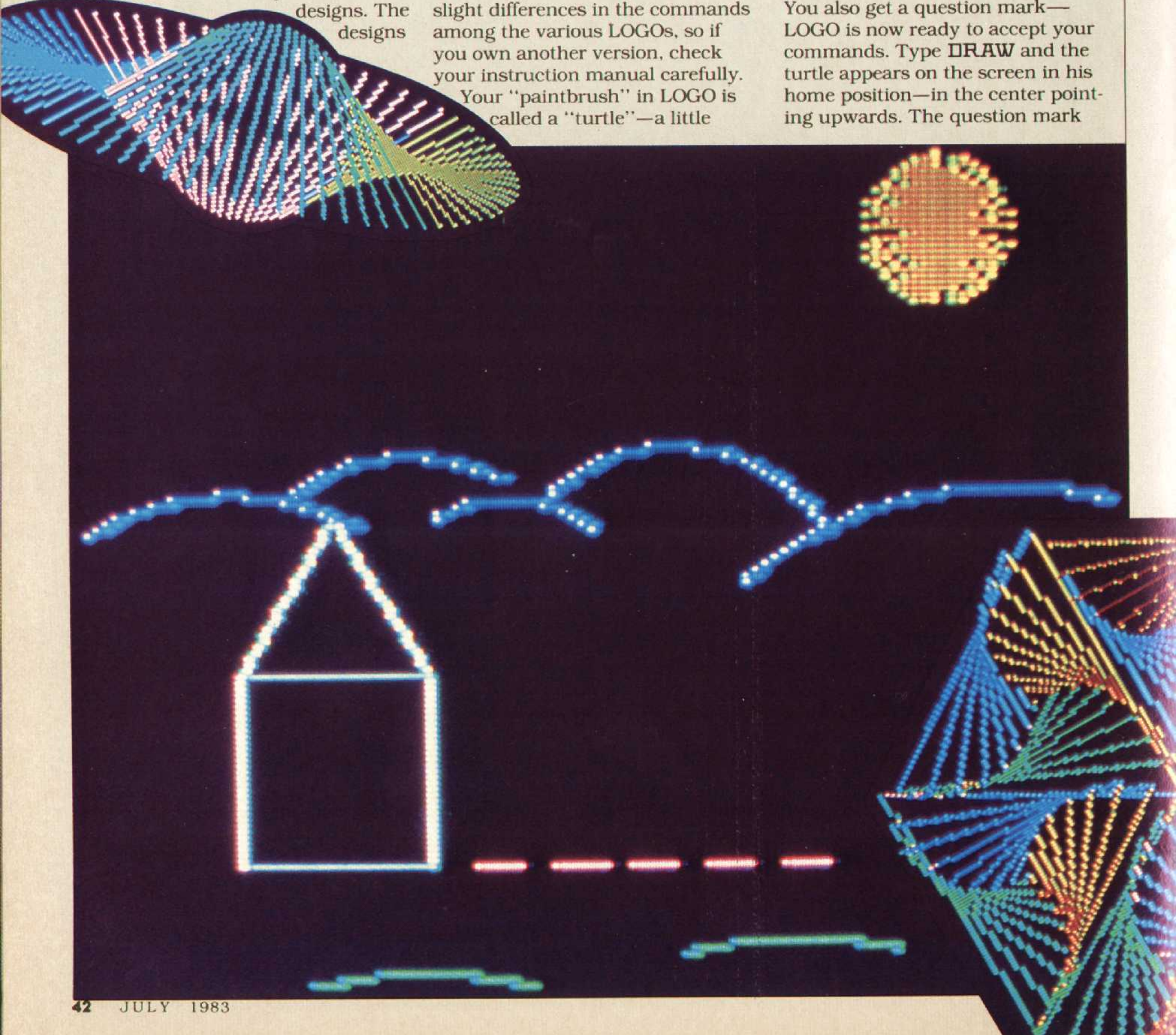
LOGO language is one of the simplest computer languages, but it can be one of the most satisfying to master. LOGO is designed primarily to do one thing—create computer graphics. It can perform some other tasks, but it's the graphics that really set it apart. Starting with some very simple elements and commands you can build your repertoire until you're able to create some spectacular designs. The designs we'll discuss in this article, though, are pretty simple, and you should be able to do them after only an hour or so of working with the language.

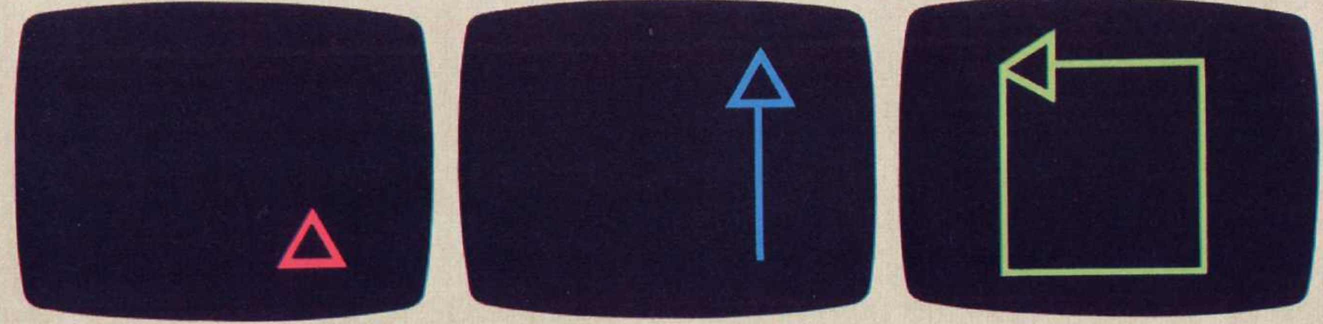
The graphics you'll read about here—and the programs, or "procedures" you'll learn to create—are for the Apple II computer. There are several versions of LOGO for the Apple, including one made by Apple itself. This article, however, uses the version put out by Krell and Terrapin. There are some slight differences in the commands among the various LOGOs, so if you own another version, check your instruction manual carefully.

Your "paintbrush" in LOGO is called a "turtle"—a little triangle that moves around your screen, leaving a line behind it as it goes. You tell the turtle where to go using commands like **FORWARD**, **BACK**, **RIGHT**, **LEFT** and so on. The turtle can also rotate. For example, the command **RIGHT 45** turns the turtle 45 degrees to the right.

Ready, Set, Logo

Load LOGO into the computer and you get the message **WELCOME TO LOGO** on the screen. You also get a question mark—LOGO is now ready to accept your commands. Type **DRAW** and the turtle appears on the screen in his home position—in the center pointing upwards. The question mark





SQUARE ROOTS: The turtle always moves in the direction in which it is facing. To draw a square requires four commands. Beginning at Fig. 1, your first command is FORWARD 80 (Fig. 2). Then you've got to get the turtle to turn so you type LEFT 90 then FORWARD 80 again. Doing this three times results in a perfect square (Fig. 3).

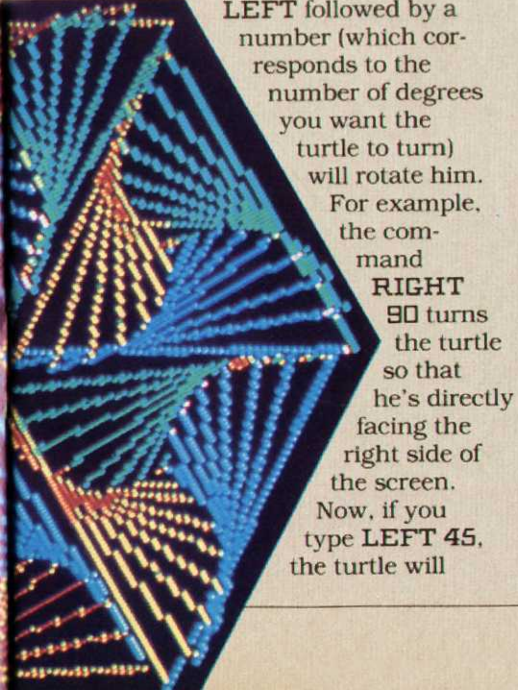
moves to the bottom of the screen, where LOGO leaves four lines for commands.

You want that turtle to move, right? So you type FORWARD (or its short form, FD) and LOGO responds

```
FORWARD NEEDS MORE
INPUTS
```

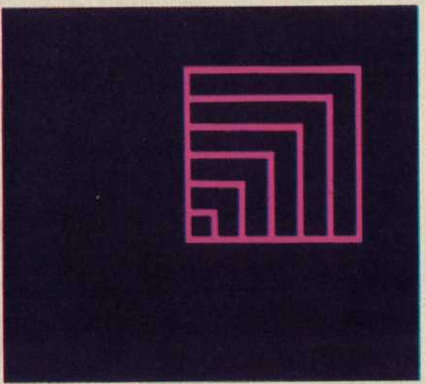
You must always tell LOGO how many "turtle steps" the turtle is to take. Type FORWARD 10 and the turtle will move 10 turtle steps; FORWARD 30 moves him 30 steps and so on. The command FORWARD always moves the turtle in the direction he is facing, in this case straight up toward the top of the screen.

Rotating the turtle also requires inputs. The commands RIGHT or LEFT followed by a number (which corresponds to the number of degrees you want the turtle to turn) will rotate him. For example, the command RIGHT 90 turns the turtle so that he's directly facing the right side of the screen. Now, if you type LEFT 45, the turtle will rotate to face the upper right corner of the screen. *The turtle always obeys commands from the position it is in.*



Drawing A Square

You get the idea, so let's begin. The most complex designs you can make with LOGO all begin with basic geometric figures, so we'll start with a square. With your turtle in home position (center screen, pointing upwards) type the command FORWARD 80. The turtle advances 80 turtle steps toward the top of the screen, drawing a vertical line in the process. Squares have right angles (90 degrees) so we tell the turtle to rotate RIGHT 90. (We could just as easily command it to turn LEFT 90, but we're right-handed.)



Above: The multisquare procedure. **Left:** More advanced Logo designs.

Since the sides of a square are all the same length, our next command is the same as our first—FORWARD 80—except this time the turtle moves toward the right side of the screen, instead of straight up.

We've got two sides of the square done—finishing the job is a snap. One more RIGHT 90 points the turtle down, one more FORWARD 80 draws the side, and the same set of commands repeated draws side four. You'll notice that the last command RIGHT 90 turns the turtle toward the *left* side of the screen so that he can close off the square. The commands RIGHT and LEFT are always executed from the *turtle's eye view*. (When LOGO was first developed at the Massachusetts Institute of Technology, the turtle was an actual robot that moved around on the floor, drawing with a pen, which made it a lot easier to visualize right and left. It's easy with the screen turtle, too, once you get the hang of it.)

That's a pretty repetitious set of instructions, and one of the beauties of LOGO is that it allows us to abbreviate. What we've just done, FORWARD 80 RIGHT 90 repeated four times, can be written

```
REPEAT 4 [FORWARD 80
RIGHT 90]
```

or even

```
REPEAT 4 [FD 80 RT 90]
```

As we said before, the more complex designs are based on the simple ones like the square, and with LOGO we can actually add "SQUARE" to the language's

Continued on page 92

THE ALL-PURPOSE VCS

Eight ways to soup-up that old Atari 2600

The Atari 2600 is one of the most versatile devices ever invented. Just think of all the things you can do with it. You can play Atari games. You can play Imagic games. Or Activision games. Even Coleco and M Network games. And all kinds of other games, like Parker Brothers, Fox, CBS, Spectravision . . . the list goes on and on.

For a lot of people, though, that's just not enough. If you're one of those people your time has come. Now you can buy all sorts of things to plug into your VCS that turn it from a simple game machine into a souped-up game machine or even a computer. Best of all, most of these items cost under $100. So get ready to plug yourself into a whole new world.

Illustration: Michael Okamoto

By Mark Trost

They say that everything is moving toward computers. This can be taken as either good news or bad news. It's good news if you're one of those people who have always been fascinated by electronic equipment and, immediately upon hearing about the imminent computer revolution, ran right out and bought yourself the proper ammunition—keyboards, mainframes, expanders, floppy disks and what have you. It's good news if you waited, didn't buy a video game and are now in the market to purchase one of those amazing devices for under $100. It's bad news if you haven't even gotten used to electric typewriters yet and are still using a quill pen and it might also be interpreted as bad news by all you video game owners out there. What, you might ask, are you supposed to do with the units that cost you almost as much as a full-fledged computer would cost you today? You could trash the system or have it bronzed or hang it from the rear view mirror of your 1957 Chevy (removing the foamrubber dice first, of course). Or you could turn it into a computer.

No Fooling

No, you don't have to take a course in Advanced Computer Insides to transform your VCS into a computer. Nor do you have to take it down to the local high-priced technician to take apart and fool around with. In fact, you don't have to have any technical knowledge whatsoever to effect this change. All you need is one of the many new devices that take that dull VCS and give it more memory than Einstein. Not every device turns the 2600 into a full-function computer—some of them simply improve the graphics and game play—but others add a keyboard and BASIC and let you write your own programs.

On the following three pages you'll find eight devices which will take your VCS from its primitive state to a highly advanced level of sophistication using, in many cases, nothing more than the cartridge slot.

There's the computer add-on from Atari. There's the Entex 2000, the Unitoys System Expander, the Power and . . . well, turn the page and see for yourself.

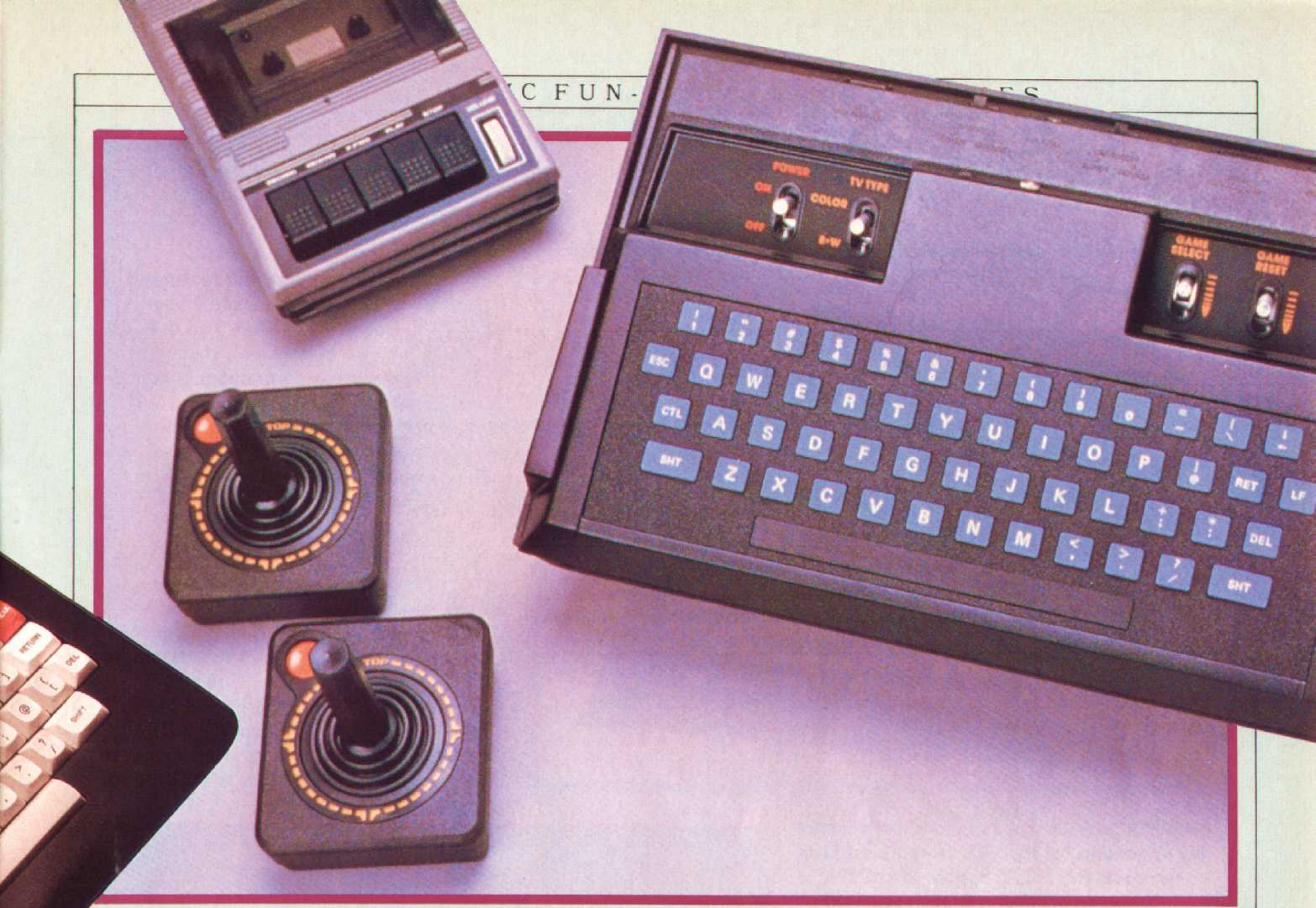
ENTEX 2000
PIGGYBACK COMPUTER
video computer
ENTEX 2000 PIGGY BACK

ENTEX 2000: This add-on adds 8K of ROM and 3K of RAM to your 2600. It has 70 keys, a cassette interface cartridge, a 16K memory expander and some educational software. And it will sell for under $200.

VIDEO-PLEXER: From Compro Electronics, this game changer plugs into the cartridge slot and allows you to pre-load as many as eight games. A unit is also available for the Intellivision system and both cost $59.95.

SPACE ATTACK
TURMOIL
FAST EDDIE
ALIEN
BEANY BOPPER
MEGA FORCE
DEADLY DUCK
WORM WAR I
8 7 6 5 4 3 2 1
CEI VIDEOPLEXER
1 2 3 4
5 6 7 8
VIDEOPLEXER

THE POWER SYSTEM: More Power to you from Amiga. This unit adds 6K bytes of memory to the VCS. It works like the Supercharger, but also has a 3-D game. It costs $44.95, including two games.


POWER
ON
OFF
TV TYPE
COLOR
B-W
GAME SELECT
GAME RESET
ESC
CTL
SHT
RET
LF
DEL
TOP

THE 2600 COMPUTER: Even Atari is in the 2600 expansion race. This unit adds 8K of RAM, has a raised keyboard, its very own built-in BASIC, a full-color graphics display and an expansion port through which it can be expanded to 32K making it more powerful than the 400 computer. It will play both VCS-compatible games and software developed expressly for it. It plugs into the cartridge slot, greatly improves graphics and you can write programs. It costs under $90.

THE POWER MODULE
With the power switch off, insert The Power module into the Atari VCS as you would a ROM cartridge.
1 Unplug the Atari power cord and insert it into The Power module T-plug. Then insert the T-plug into the Atari.
2 Insert the second cord from The Power module into the earphone jack of your cassette player.
3 Turn the Atari on and follow the instructions on the TV screen.
4 Game will appear in 30 seconds.
THE POWER SYSTEM
THE POWER

DON'T PLAY AT A DISADVANTAGE!
Suncom
LEFTY™ JOYSTICK ADAPTOR
LEFTY TOP
For use with ATARI GAME CONSOLE
Sears TELE-GAME, COMMODORE,
ATARI 400/800*

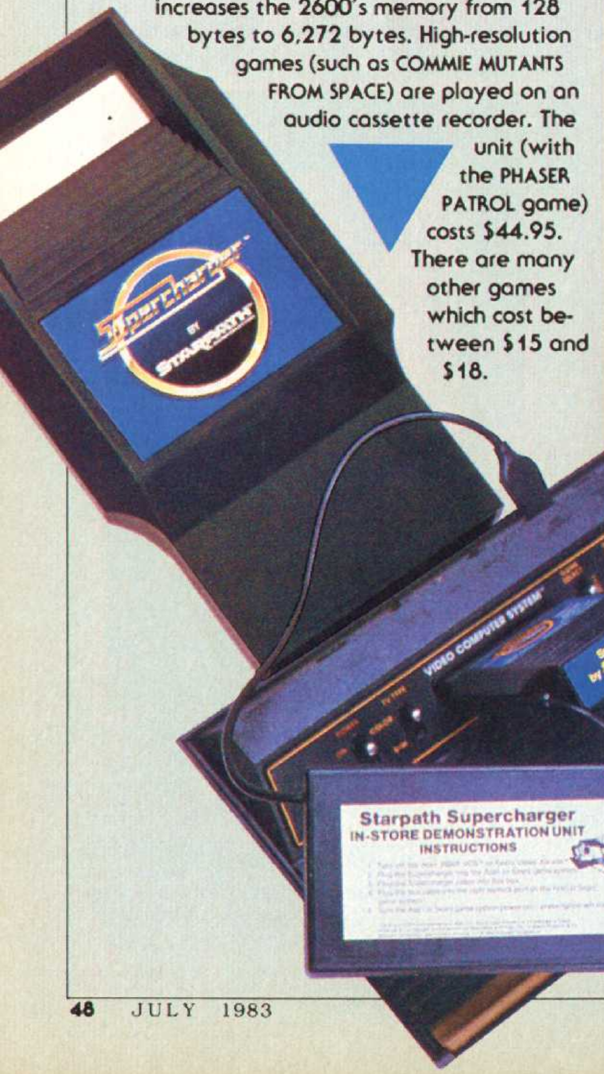
LEFTY: This left-handy item from SunCom changes all directional controls so you can fire with your right hand and control with your left. Price? Only $6.95.

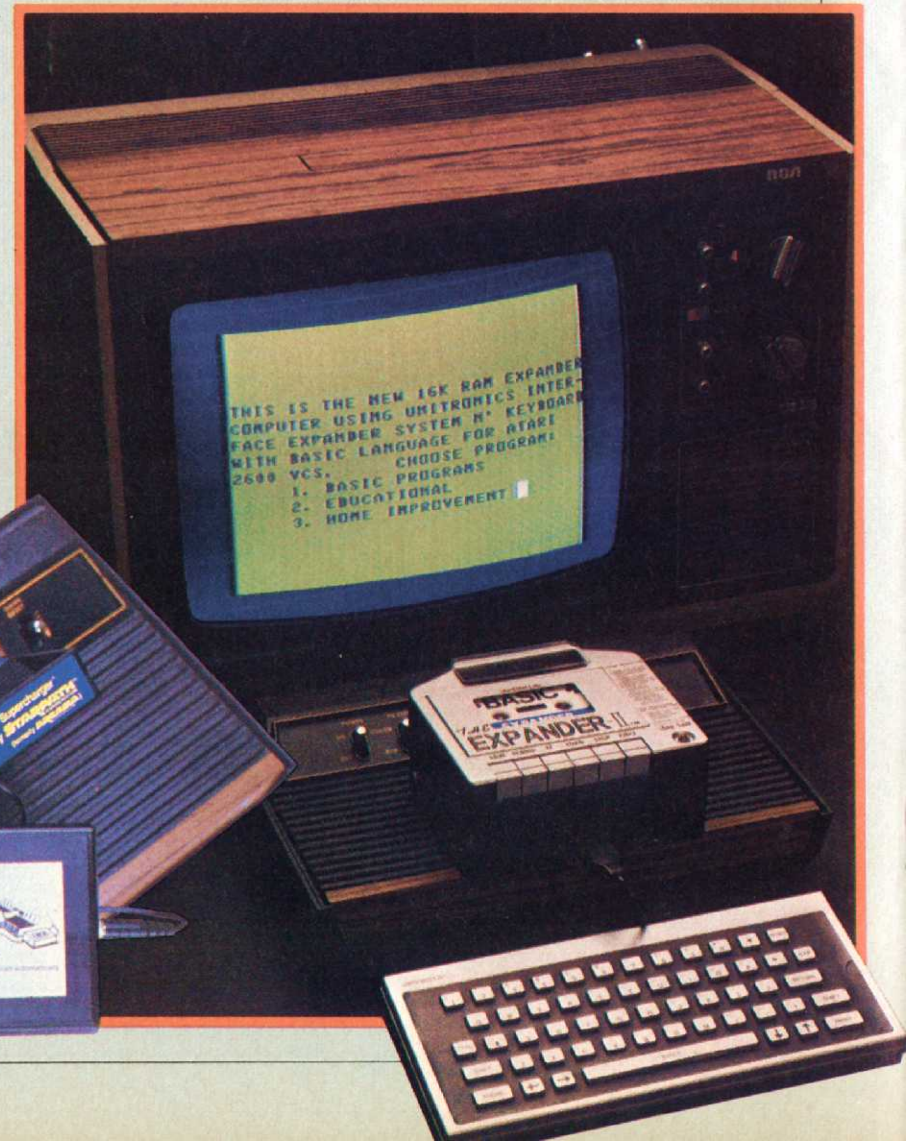
CompuMate 2600
SPECTRAVIDEO
basic 2600

COMPUMATE 2600: Spectravideo's unit features a 42-key touch sensitive keyboard, 2K of RAM, 16K of ROM, a two octave, two channel music composer and a built-in Magic Easel which turns your joystick from laser into paintbrush. You can access up to 10 colors. It interfaces with any audio cassette recorder. The price is under $200.

UNITOYS EXPANDER: Another Supercharger spin-off, this one brings the memory of the VCS up to 16K and has its own built-in tape recorder. And you don't have to unhook the Expander to play regular VCS games, either. Unitoys also plans an Expander expander— a computer keyboard. The Expander costs $80, the keyboard $70.

THE SUPERCHARGER: The grandaddy of all memory expanders for the VCS, Starpath's add-on increases the 2600's memory from 128 bytes to 6,272 bytes. High-resolution games (such as COMMIE MUTANTS FROM SPACE) are played on an audio cassette recorder. The unit (with the PHASER PATROL game) costs $44.95. There are many other games which cost between $15 and $18.


Supercharger by STARPATH
VIDEO COMPUTER SYSTEM
Starpath Supercharger
IN-STORE DEMONSTRATION UNIT
INSTRUCTIONS



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THIS IS THE NEW 16K RAM EXPANDER
COMPUTER USING UNITRONICS INTER-
FACE EXPANDER SYSTEM N' KEYBOARD
WITH BASIC LANGUAGE FOR ATARI
2600 VCS.    CHOOSE PROGRAM:
   1.  BASIC PROGRAMS
   2.  EDUCATIONAL
   3.  HOME IMPROVEMENT
```

RCA
BASIC
EXPANDER II

VIDEO GAME HALL OF FUN

Our readers choose the best in games

The movies have their Oscars, the television people have their Emmies and the record people have their Grammies. The time has come for the video game people to get their awards, so get ready for the Video Game Hall Of Fun. And it won't be the know-it-all editors and reviewers of Electronic Fun *who give these awards, it will be the real know-it-alls—you, our readers.*

The first Video Game Hall Of Fun awards ceremony will be held in New York in **November**, to coincide with the Electronic Fun Expo to be held at the New York Coliseum (sponsored by your favorite magazine). We've chosen a number of categories to give awards in, and we've chosen a number of nominees for those awards. But it's up to you to make the final choice.

Turn the page and you'll see our Hall Of Fun ballot. Just check the game in each category you think is most deserving of a permanent place in game history. Did we leave out your favorite game? Just write in your choice on the line provided and check the box. Please select only one choice per category.

Our top award—Most Fun—is entirely up to you. We just couldn't decide which of all the many great games available should even make up the nominees. To be eligible, a game can be for any of the following systems: Atari 2600 or 5200, Intellivision, ColecoVision, Odyssey^2 or Odyssey^3. It must have been released since June, 1982. We know it's hard, but please choose just one game.

And since one award deserves another, we'll hold a random drawing among all the ballots we receive. The top prize: A trip to New York for the Electronic Fun Expo and the awards banquet! So be sure to fill out your name, address and phone number in the space provided.

Get your ballots in by the end of August. Mail them to Hall Of Fun, 350 E. 81 St., New York, NY 10028. If you don't want to rip up your issue of *Electronic Fun*, a copy of the ballot is acceptable. Don't forget your name and address!

NAME ____________________

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OFFICIAL HALL OF FUN BALLOT

MOST ORIGINAL

☐**Dolphin** *(Activision/Atari VCS)*
☐**Happy Trails** *(Activision/Intellivision)*
☐**Keystone Kapers** *(Activision/Atari VCS)*
☐**Micro Surgeon** *(Imagic/Intellivision)*
☐**No Escape** *(Imagic/Atari VCS)*
☐**Shark, Shark** *(Mattel/Intellivision)*
☐**Fast Food** *(Telesys/Atari VCS)*
☐ ______________________

BEST SHOOT 'EM UP

☐**Centipede** *(Atari/Atari VCS and 5200)*
☐**Cosmic Avenger** *(Coleco/ColecoVision)*
☐**Cosmic Chasm** *(GCE/Vectrex)*
☐**No Escape** *(Imagic/Atari VCS)*
☐**Turmoil** *(Fox Games/Atari VCS)*
☐**Venture** *(Coleco/ColecoVision)*
☐**Web Wars** *(GCE/Vectrex)*
☐ ______________________

BEST ADVENTURE

☐**Advanced Dungeons and Dragons** *(Mattel/Intellivision)*
☐**Dragon Stomper** *(Starpath/Atari VCS)*
☐**Raiders of the Lost Ark** *(Atari/ VCS)*
☐**Swords and Serpents** *(Imagic/Intellivision)*
☐**Tropical Troubles** *(Imagic/Intellivision)*
☐ ______________________

BEST CLIMBING

☐**Beauty and the Beast** *(Imagic/Intellivision)*
☐**BurgerTime** *(Mattel/Intellivision)*
☐**Donkey Kong** *(Coleco/ColecoVision)*
☐**Donkey Kong Jr.** *(Coleco/ColecoVision)*
☐**Fast Eddie** *(Fox Games/Atari VCS)*
☐**Kangaroo** *(Atari/Atari 5200)*
☐**Miner 2049er** *(TigerVision/Atari VCS)*
☐**Pick Axe Pete** *(Odyssey/Odyssey²)*
☐**Space Panic** *(Coleco/Coleco Vision)*
☐ ______________________

BEST ARCADE TO HOME

☐**BurgerTime** *(Mattel/Intellivision)*
☐**Centipede** *(Atari/Atari 5200)*
☐**Defender** *(Atari/ VCS and 5200)*
☐**Donkey Kong Junior** *(Coleco/ColecoVision)*
☐**Mousetrap** *(Coleco/ColecoVision)*
☐**Ms. Pac-Man** *(Atari/Atari VCS)*
☐**Rip Off** *(GCE/Vectrex)*
☐**Space Dungeon** *(Atari/Atari 5200)*
☐**Venture** *(Coleco/ColecoVision)*
☐**Zaxxon** *(Coleco/ColecoVision)*
☐ ______________________

BEST MAZE

☐**Clean Sweep** *(GCE/Vectrex)*
☐**Escape from the Mindmaster** *(Starpath/Atari VCS)*
☐**Happy Trails** *(Activision/Intellivision)*
☐**KC's Krazy Chase** *(Odyssey/Odyssey²)*
☐**Ladybug** *(Coleco/ColecoVision)*
☐**Lock 'n' Chase** *(Mattel/Intellivision)*
☐**Mousetrap** *(Coleco/ColecoVision)*
☐**Ms. Pac-Man** *(Atari/Atari VCS)*
☐**Pac-Man** *(Atari 5200)*
☐**Pepper II** *(Coleco/ColecoVision)*
☐ ______________________

BEST SPORTS

☐**Football** *(Atari/Atari 5200)*
☐**M Network Baseball** *(Mattel/Atari VCS)*
☐**M Network Football** *(Mattel/Atari VCS)*
☐**RealSports Baseball** *(Atari/Atari VCS)*
☐**RealSports Football** *(Atari/Atari VCS)*
☐**Soccer** *(Atari/Atari 5200)*
☐**Tennis** *(Atari/Atari 5200)*
☐ ______________________

BEST GRAPHICS

☐**Donkey Kong** *(Coleco/ColecoVision)*
☐**Donkey Kong Jr.** *(Coleco/ColecoVision)*
☐**Keystone Kapers** *(Activision/Atari VCS)*
☐**Micro Surgeon** *(Imagic/Intellivision)*
☐**Swordquest FireWorld** *(Atari/Atari VCS)*
☐**Turbo** *(Coleco/ColecoVision)*
☐**Zaxxon** *(Coleco/ColecoVision)*
☐**Happy Trails** *(Activision/VCS)*
☐ ______________________

BEST ACTION

☐**Dracula** *(Imagic/Intellivision)*
☐**Dragon Fire** *(Imagic/Atari VCS and Intellivision)*
☐**Keystone Kapers** *(Activision/Atari VCS)*
☐**Shark, Shark** *(Mattel/Intellivision)*
☐**Spider Fighter** *(Activision/Atari VCS)*
☐**Tron Deadly Discs** *(Mattel/Atari VCS and Intellivision)*
☐**Zaxxon** *(Coleco/ColecoVision)*
☐ ______________________

BEST DRIVING

☐**Enduro** *(Activision/Atari VCS)*
☐**HyperChase** *(GCE/Vectrex)*
☐**Turbo** *(Coleco/ColecoVision)*
☐ ______________________

BEST STRATEGY

☐**B-17 Bomber** *(Mattel/Intellivision)*
☐**Countermeasure** *(Atari/Atari 5200)*
☐**Utopia** *(Mattel/Intellivision)*
☐ ______________________

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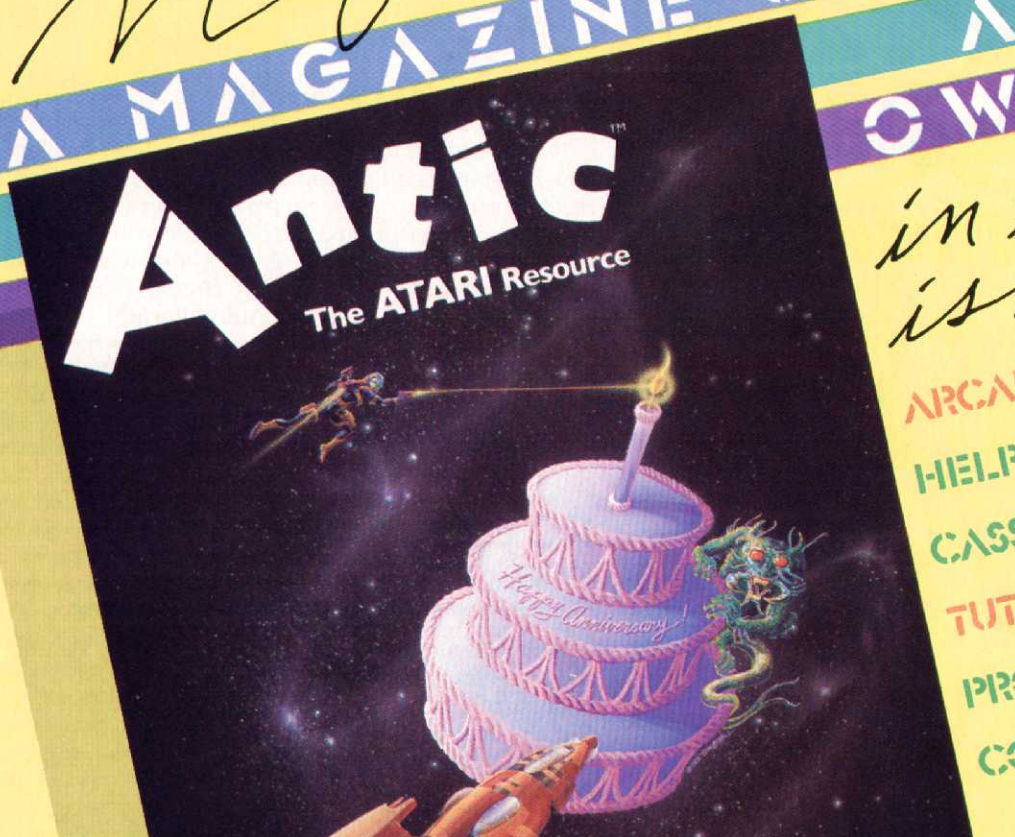

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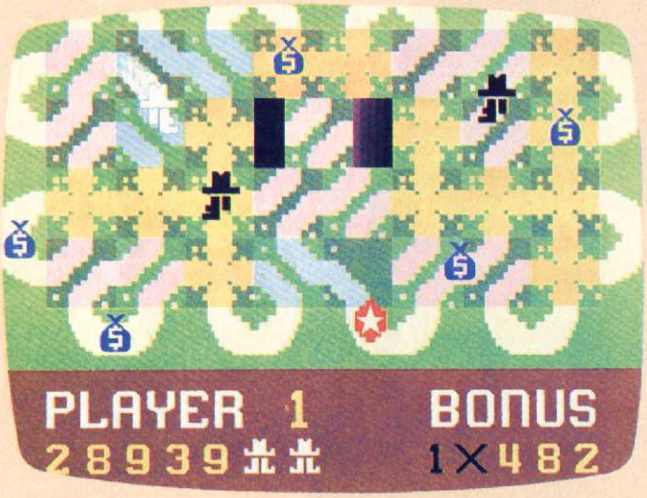
Thar's gold in them thar trails



HAPPY TRAILS ♟♟♟♟

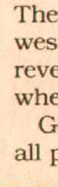
Activision/Intellivision

By George Kopp

You are a grizzled old prospector, say Walter Huston in *Treasure of Sierra Madre*, searching the hills of the old west. Searching for gold, for riches, for the meaning of life, but mainly seraching for how the heck you get from here to there. *Happy Trails*, designed by *River Raid*'s Carol Shaw, proves that gold fever is contagious—once you've caught the bug you're not going to be able to shake it, and you'll give it to all your friends. This one's a winner.

The prospector, a large hat with two feet sticking out the bottom, weaves around a maze that's divided into a number of blocks. The only trouble is that the paths of the maze lead to dead ends, and they couldn't be deader. Hit the end of the trail and you've had it. Worse still, you can't steer the old geezer. Instead, you shift the blocks of the maze around to make complete trails. The geezer never stops his steady trek, done to a western-style clippety-clop vamp. You can, however, reverse his direction and speed him up—a good idea when you get some smooth roads ahead of you.

Getting the gold itself is not a backbreaking job. It's all packed up in little blue bags. Unfortunately, you're not the only geezer in them thar hills. An outlaw (a black hat, natch) roams about as well, and he has no trouble at all with dead ends. The only way to eliminate him is to get yourself deputized (by picking up a red badge) and catching up with him in the few seconds the game gives you as a lawman.



The mazes get tougher and bigger as you go along, and the gold and the badges get harder and harder to reach. Even if you have a terrific memory for patterns there is a random maze selection that will destroy all your hard work. There's also a fast game speed for the truly crazed. *Happy Trails* could easily send you to the Funny Farm.

As soon as you pick up a badge press your speed button. If you fail to kill the outlaw, you can head him off at the pass by sabotaging his trails while making your own.

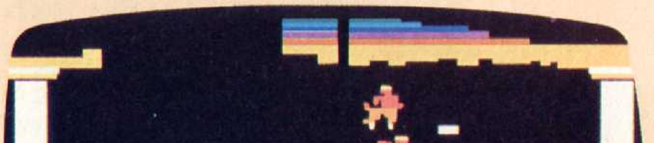
NO ESCAPE ♟♟♟

Imagic/Atari VCS

By Phil Wiswell and Bernie DeKoven

Most video games are designed so that no matter what the player does he will lose eventually to a wave of creatures or obstacles that just move too fast to beat. But the desired balance, struck very nicely here, is to present a challenge that the player can neither overcome nor resist playing again and again. And though *No Escape* falls into the overworked genre of shoot-em-ups, it delivers a new, exciting kind of perceptual problem on screen that is very different from anything in its class.

There are four skill levels, and each places you farther into the game program, so you can practice on upper waves with all your lives intact. The scene depicts a temple whose roof is composed of six layers of colored bricks (much like *Breakout*). Above the ground-based hero, Jason, hovers a column of six Furies. That does remind one of *Space Invaders*, but instead of shooting the Furies directly, Jason must knock magic bricks from the temple roof and time their descent to



Hits & Missiles

hit the Furies who keep moving from side to side. And this is what's so exciting: figuring out the relationship between the movement of the Furies for each wave and the speed at which a brick will fall.

Jason can sling rocks toward the roof at various angles, but the resulting bricks that fall will kill Jason as well as the Furies, so keep an eye on them. And don't hit a Fury with a rock or it will clone itself into *two* Furies. As the game progresses, the Furies move according to different laws and become much better at avoiding falling bricks. At one level you have to fool them by slinging several rocks at once, then leading the Furies into dangerous positions. Each wave has an increasing order of difficulty: As Furies are eliminated, the column shrinks farther from the temple roof—until that last Fury can be murder to catch!

Don't waste shots. Each brick left at the end of a wave is worth one bonus point.

KANGAROO 1111

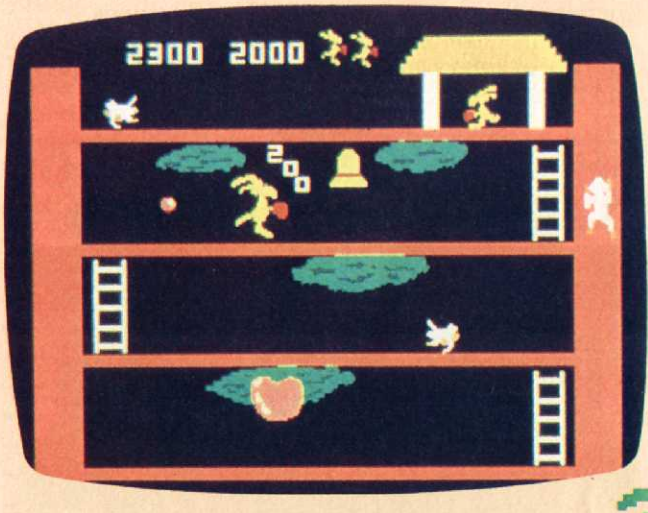
Atari/Atari 5200

By Randi Hacker

Punching out lower primates may not be the ASPCA's idea of fun but it does bring you 200 points in *Kangaroo* and, when you're a desperate mother determined to rescue your little baby, you won't let any furry creature with prehensile toes stand in your way. That's the premise of *Kangaroo*, the latest arcade adaptation for the Atari 5200.

You're a kangaroo sporting a pair of boxing gloves. Your little Joey is being held captive in the top branches of the grandfather of all trees. You've got to rescue him. You do this by hopping along the branches and climbing ladders. As if climbing wasn't hard enough wearing great, clumsy padded mitts, you've also got to avoid monkeys throwing apples. You can duck or jump or, if you're fast, you can get close to them and throw them an uppercut to the jaw and destroy them.

Along the way you can also pick fruit. You do this by hopping directly underneath one of the succulents and then leaping into the air. There's at least one fruit per tree level and when you get to the next-to-the-top level you can ring a bell which will cause a whole new species of fruit to instantly bloom (this is an agricultural secret that farmers would kill to get hold of). Then, if you wish, you can go back along the territory you've already covered to rack up even more points. While this increases your score, it also increases your chances of getting beaned by one of the monkeys who, it seems, are divided into two groups—bowlers and pitchers. Also, the longer it takes you to reach the arboreal day care center, the fewer bonus points you get. This is another reason not to spend too much time harvesting fruit. Each time you reach your offspring, you get bonus points and progress to the next level.



This is a top-notch arcade adaptation. The graphics are splendid from your high-resolution marsupial right down to the knuckle-walking anthropoids.

Try to KO the monkeys before they get the chance to hurl any apples. Dash right up to them, crouch and jab.

KILLER BEES 🕹🕹🕹

Odyssey/Odyssey²

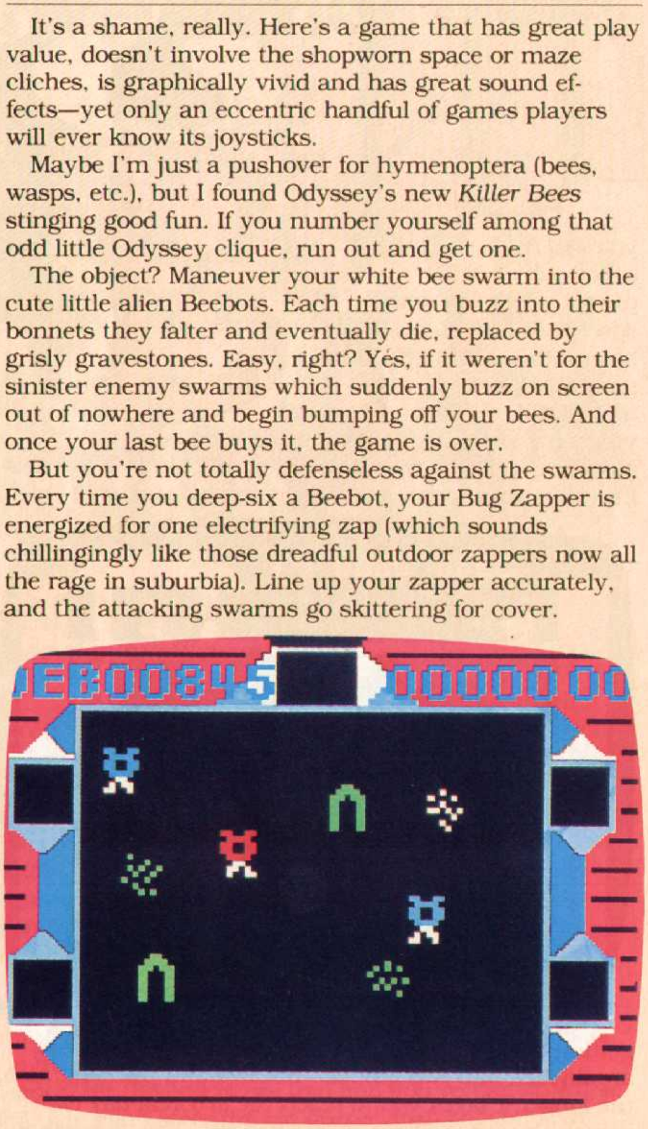
By Art Levis

It's a shame, really. Here's a game that has great play value, doesn't involve the shopworn space or maze cliches, is graphically vivid and has great sound effects—yet only an eccentric handful of games players will ever know its joysticks.

Maybe I'm just a pushover for hymenoptera (bees, wasps, etc.), but I found Odyssey's new *Killer Bees* stinging good fun. If you number yourself among that odd little Odyssey clique, run out and get one.

The object? Maneuver your white bee swarm into the cute little alien Beebots. Each time you buzz into their bonnets they falter and eventually die, replaced by grisly gravestones. Easy, right? Yes, if it weren't for the sinister enemy swarms which suddenly buzz on screen out of nowhere and begin bumping off your bees. And once your last bee buys it, the game is over.

But you're not totally defenseless against the swarms. Every time you deep-six a Beebot, your Bug Zapper is energized for one electrifying zap (which sounds chillingly like those dreadful outdoor zappers now all the rage in suburbia). Line up your zapper accurately, and the attacking swarms go skittering for cover.



Killer Bees' other sound effects don't match the zapper for realism, but they were clearly conceived by someone with a quirky sense of silliness. When the defending swarm first appears on-screen, it's accompanied by what sounds like a half-drunk Rich Little imitating bees. The defending swarm's swan song is a pathetic "Ohh." There's one audio oddity I never did figure out. While waiting for your swarm to be launched against a new wave of Beebots, Odyssey croons something which sounds like "Eewerp, eewerp, eewerp." I still don't know what it's trying to say. I hope it's not important.

Make sure your zapper is aligned against the alien swarm or swarms before punching the zapper button. If it isn't, you've wasted a zap and must blast another Beebot before you get a recharge.

REVENGE OF THE BEEFSTEAK TOMATOES 🕹🕹🕹

Fox Games/Atari VCS

By Marc Berman

Heinz may have 57 varieties but Fox is gaining on them. *Revenge of the Beefsteak Tomatoes* offers 32 different varieties of gameplay. Finding the one you like may be the juiciest challenge of all.

Your task here is to build three brick walls which halt the onslaught of killer tomatoes. Completing the construction makes the mother vines wither and begins a new round of play.

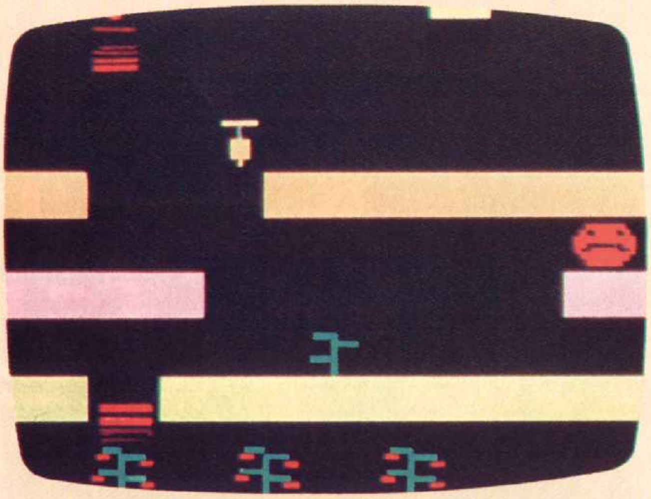
To build the walls you must first shoot bricks with your garden sprayer. The bricks traverse the top of the screen. When you hit one, turn the sprayer around and fire at the bottom edge of your screen—a brick will appear between you and the mother vines. You must complete the bottom (green) wall first, the pink wall next and the yellow wall last, so choose your bricks thoughtfully.

Meanwhile the vines are firing lethal cherry tomatoes at you, medium-sized tomatoes are bombing you from above and chomping beefsteaks lunge at you from the left and right. You can fire at the tomatoes for points and for the satisfaction of seeing them splatter, but it doesn't decrease their number. Ripe and ruthless, they just keep on coming. Bricks will disappear if you let sprouts take root on them, so blow them away pronto or you'll have to catch up later.

For all its 32 variations, *Revenge of the Beefsteak Tomatoes* is only a one-player game. Setting the left difficulty switch on "A" gives you only four sprayers. Setting it on "B" gives you an infinite number. The right difficulty switch controls the speed with which the tomatoes attack. Unfortunately, on the "fast" setting only the enemies speed up; your sprayer speed stays constant.

The game select switch lets you choose any of eight options. Easier levels leave out sprouts, cherry bombers and/or big beefsteaks. On the harder settings, there are green tomatoes and wide tomato slices to avoid as well.

Fox may have undermined the game by giving the player a never ending supply of sprayers on the "BA"



and "BB" settings. At the very least it poses an existential dilemma: "If I have an infinite number of lives, does life have any meaning? Why should I *endlessly* try to build this wall? What does my score measure? Certainly not skill or endurance; perhaps it measures my lack of determinism or merely the emptiness of existence itself." Stick to the "AB" setting unless you're ready to confront the existential void.

Until you completely block off the vines, don't be too particular about what color bricks you shoot. Once you've blocked them, you can go back and fill in the green wall.

NOVA BLAST

Imagic/Intellivision

By Michael Blanchet

If you believe beauty is only skin deep, you can stop reading right here. This trite but appropriate bit of wisdom says it all about *Nova Blast*.

Don't get me wrong—*Nova Blast* is a good game. The drawback here is the game's storyline: the classic *Defender* motif of ships vs. ships, fighting over some form of ground-based target. In this case, the target is a strip of four cities which you must protect from some of the most imaginatively named video game villains ever (Quemens, Gravitines and Wintoks, to name a few).

Since the game's premise is so played out, *Nova Blast* lacks the one thing video games on the whole need now more than ever—originality. But it does rate high in the looks department, and easily maintains Imagic's reputation as a producer of tight and colorful graphics.

Each game of *Nova Blast* is divided into a series of battles. In the first round, for example, your jet faces off against a fleet of Astro Sailors, which are little more than nondescript circles. From there on out, you confront a different breed of bad guy in each of the ensuing rounds you manage to live through—but although their names are different, they all look and behave the same. The only apparent difference between one group and the next is that they get more plentiful and faster with the passage of time. Eventually (as if I even had to tell you) the enemy forces get so aggressive you can barely keep up. By the tenth round a message should (but doesn't) flash on the screen: "Congratulations! You've reached the impossible stage!"

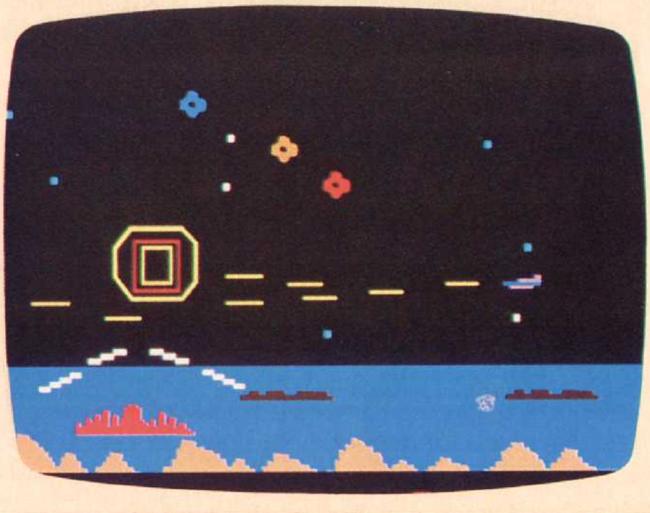
The reason *Nova Blast* becomes so difficult so quickly is no fault of Imagic's. The blame once again falls on Mattel. That ridiculous disk they try to pass off as a controller doesn't respond with any accuracy, leaving you at an overwhelming disadvantage in later rounds of the game. As for the firing button, it works well as long as you hold it down. The problem is the button's size and action. The diminutive switch has a tendency to dent your fingertips and is about as easy to push as a truck anchored with wheel chocks.

But for every quirk of the controller, Imagic counters with a nifty play action feature. One of these is the damage indicator. Instead of game lives you are given 10 ship lives. When your ship collides with an attacker or falls prey to an enemy shell, it won't be destroyed. Instead, it will shudder, twitch and turn yellow. In any given round, you can sustain 10 such mishaps. At the beginnning of a new wave you are given a pristine vessel.

Another neat sequence occurs when you need to refuel. To do so you must hover over a fuel depot and "beam" the juice aboard. The same beam, if activated over a city that has lost its protective barrier, will temporarily shield that installation from enemy attack.

Nova Blast is a textbook example of an overworked idea, brilliantly executed. But it is the best Intellivision-compatible *Defender* clone around. And if you do buy *Nova Blast*, pick up a snap-on joystick too. It will even up your chances of survival.

As you fly, move up and down across half of the screen. You'll increase your chances of making a hit.



KILLER SATELLITES

Starpath/Atari VCS

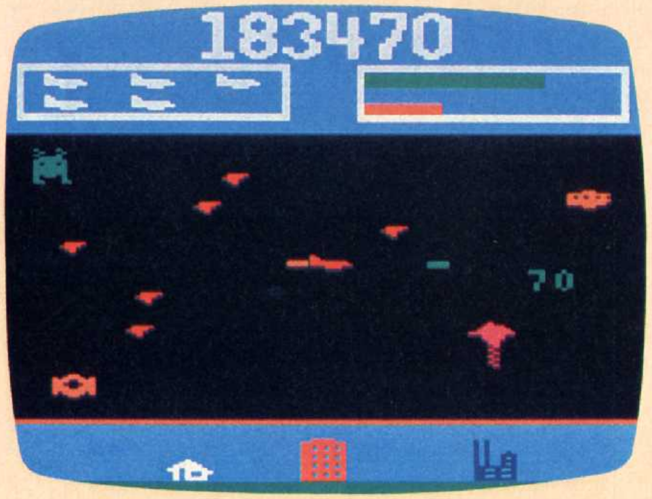
By Paul Backer

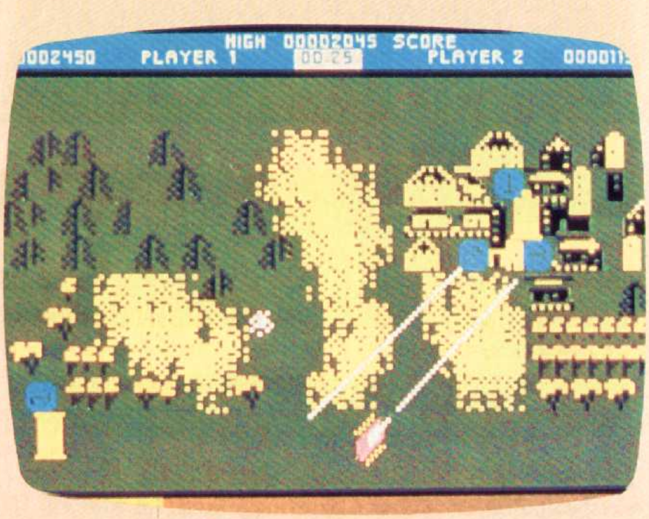
Defender has to be the most frequently-cloned game of all time. Now there is a clone available for the Supercharger. But unlike games like Microsoft's *Chopper Rescue* it isn't anything special at all. The idea of the game is to protect earth from falling satellites. Personally I think they should have called it 'Skylab'.

You are equipped with a plane, but in this version you have no smart bombs and the radar is a rather shabby display of dots. You have to watch out for satellites that are falling from the sky and stop them before they reach the buildings, trees and factories below. There are shapes, ranging from a rather straightforward bomb to something that resembles a baby in a crib. There are also flying chunks of debris which, even though they can't hurt the people below, can hurt you. On the higher levels, the satellites and the debris sometimes go out of their way in order to get you, but normally they just glide down and blow up whatever they land on.

Killer Satellites is a disappointment. It's too repetitious to be much fun for a long period of time. You have to stand around and wait for the satellites to fall—you can't sneak up on them and blast them from the rear. Game play is way too simplistic, and it really doesn't compare to other Supercharger games, like *Phaser Patrol*. The folks at Starpath should have done better.

Watch out for the rather large striped satellites. It takes two shots to destroy them. If you only shoot them once, they'll just pop their top and keep going.





COUNTERMEASURE

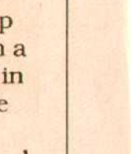
Atari/Atari 5200

By John Hubach

Countermeasure is a game based on a real modern-day fear: Lunatic terrorists have captured one of our missile-silo complexes and are threatening to blow up Washington DC. The launch timer is running, and in a mere 10 minutes the whole world could be engulfed in a nuclear war. Your job: Destroy all seven silos in the complex before the deadline.

Your artillery in the mission is a Supertank equipped with a long-range turret gun that rotates 360 degrees and can move independently of the tank body. To reach the enemy-controlled silos and friendly supply depots, you must negotiate terrain ranging from open fields to forests and towns.

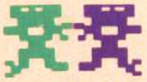
Each silo is surrounded by terrorist-controlled pillboxes, with turret guns of their own that rotate and fire randomly at you. You needn't destroy all of them, but the ones in your way must be dispatched. When the fuel gauge at the bottom of the screen turns red, it's time to gas up at a supply depot—otherwise your Supertank is a goner.



While docked at the depot, you'll also discover one part of the three-letter fail-safe code that can stop the missile launch sequence. Those clues come in handy: If you don't destroy all the silos before time runs out, you'll have about 16 seconds to guess the complete code and enter it via your controller's keypad. Guess right and you'll get 10,000 points and an extra life. Guess wrong and the whole world blows up—a terrifying on-screen explosion that dissolves into the image of a ghoulish, grinning death's head.

Countermeasure is a basic shoot-em-up combined with a bit of strategy—and with graphics and sound effects that are nothing short of brilliant. While it's a slow-moving game at first, higher skill levels (there are 10) provide plenty of fast and furious action.

Once you get two of the code letters, check in at the War Room. It'll be easy to figure out the missing letter.



SPACE FURY 🕹🕹🕹🕹

Coleco/ColecoVision

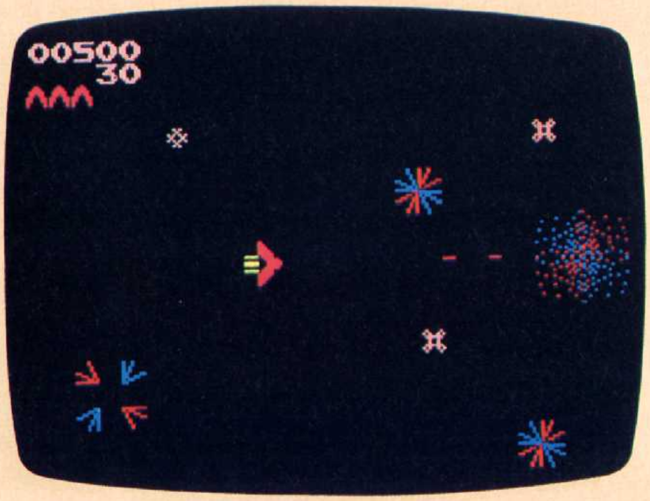
By Noel Steere

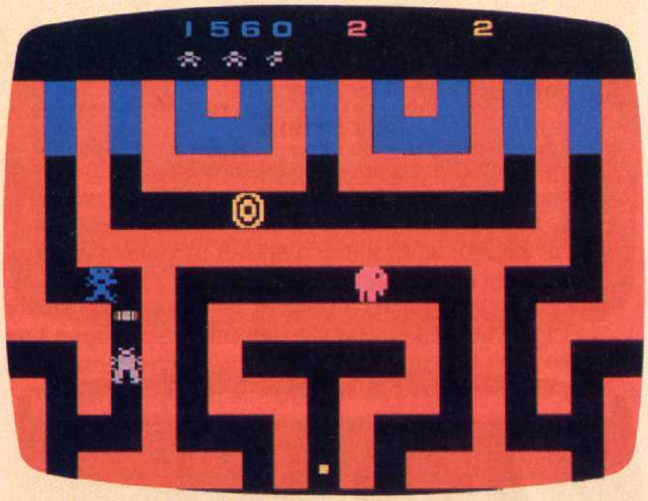
This *Asteroids*-type game has all the features of the arcade game. At the outset, the alien commander's face appears. Although he doesn't speak and his eye is unmoving, he looks very good anyway. His mouth moves perfectly and his face and shoulders look better than they do in the arcade game. In the background, some pretty impressive music plays while a strip of words scrolls by under him displaying what he says. After this, you appear in the center of the screen while all around you quarters of several ships float. Their goal is an assigned point on the screen where they will then get together to form several complete ships. If they should succeed they will be able to hurl destructive fireballs at you. However, if you can destroy them before they reach their destination or if, say, only three of them manage to meet and form three quarters of a ship, they cannot fire at you. But they can ram you.

After destroying all the ships, you can then dock with one of three friendly ships. You have 10 seconds to do this. Luckily, all you have to do is turn to the ship you want to dock with and thrust. After doing this, you get a certain amount of bonus points—the amount depends on how long it took you to destroy the last batch.

As well as being the first vector-graphics arcade game on a non-vector game system, the way the controllers are used is somewhat new, too. Instead of pushing the joystick up to thrust, you push the left side button. This is a new technique that makes it easier to score higher.

There's no need to thrust away from your initial position. The ships will never form directly on top of you and you'll have time to shoot at them before they move.





MINES OF MINOS 🕹🕹🕹

CommaVid/Atari VCS

By Noel Steere

There are games that have spooky plots like *Frankenstein's Monster*. There are also games that have spooky sound effects like *Haunted House*. Finally, there are games with spooky graphics. One of these is *Mines of Minos*.

You are the last of the mining robots in the mines of Minos, thanks to a whole lot of aliens who turned this mining operation upside-down by destroying all the robots (except you... but they're trying!). These aliens have set up a command center at the lowest level of the maze-like mines. You must pick up the parts of your companion robots who have been dismantled (and, believe me, one look at these aliens and you would fall to pieces, too) then you've got to bring them to the top or bottom of the mines. As soon as this has been done three times, you get a free robot. You start with only one robot.

Although the aliens who are deadly to the touch are chasing you, you are not defenseless. You have time bombs which, if an alien steps on one, will explode right in its face and kill it immediately. However, the time bombs can only be released one at a time. Also, if you touch an alien who has stepped on a time bomb before it has disappeared more than halfway, your robot will die.

As if this weren't enough, the mine is also being flooded with water. If you should happen to wade in this liquid, you will be slowed down. In addition, your time bombs won't work.

The robots' animation makes them look more like they're doing a dance than walking, and the sound effects aren't much either. However, the aliens are stunningly scary due to their excellent resolution.

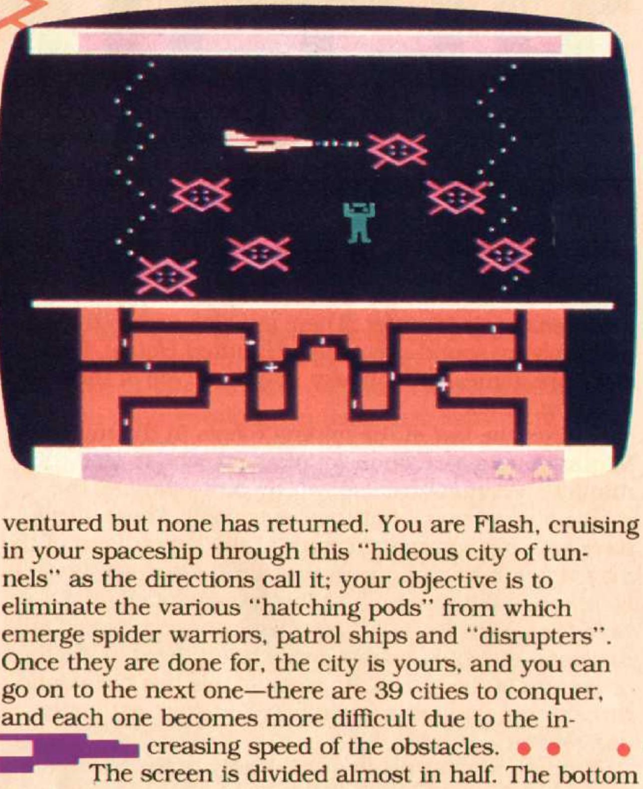
FLASH GORDON

Fox Games/Atari VCS

By Ed Hulse

The indomitable galactic gladiator created in 1934 by cartoonist Alex Raymond has been a popular favorite in comics, movies, radio, TV and even novels—but I don't think he'll make as much of a splash in video games as he has in other media.

The playfield is meant to represent the sinister Spider City, into which many a dedicated Spaceman has ventured but none has returned. You are Flash, cruising in your spaceship through this "hideous city of tunnels" as the directions call it; your objective is to eliminate the various "hatching pods" from which emerge spider warriors, patrol ships and "disrupters". Once they are done for, the city is yours, and you can go on to the next one—there are 39 cities to conquer, and each one becomes more difficult due to the increasing speed of the obstacles.



The screen is divided almost in half. The bottom portion is a maze which acts as a road map for you. The upper portion looks like blank space, and only by following the maze (in which your ship's progress can be traced) can you tell if you're running into a blank wall.

The maze, in fact, is one of the things I don't like about this game. It takes up too much room, cutting down on your ships' maneuverability, and really doesn't add much enjoyment to gameplay.

Each time you conquer a city, you receive an extra ship to your credit (ships can be destroyed by colliding with Spider Patrol cruisers or warriors; up to nine bonus ships can be displayed on the screen). When you hit one of the hatching pods with your rocket ship, it releases warriors who must be zapped. Shoot five warriors from any hatching and you absorb enough power to establish a temporary force field rendering you impervious from harm—and that's where you can capitalize on potential scoring opportunities. In fact, you can safely collide with enemy ships when your shields are up, destroying them rather than vice versa. Beware, though, when you hear two quick beeps: That means that the force field is about to disappear.

Flash Gordon sounds like more fun than it is. The restrictions of playfield size and monotony of play (even in the advanced levels, where speed is increased but the situations remain the same) will make it fairly easy to master, and advanced players will quickly tire of it.

Try to lure the warriors all the way to one side of the screen, then slip out and enter on the other side, blasting them from behind.

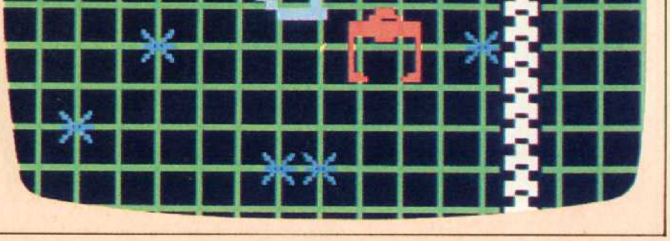
SOLAR SAILER

Mattel/Intellivision

By Howard Polskin

Welcome to Mattel's version of the beauty and the beast fable. *Solar Sailer* is a beauty to behold but a beast to play. Some day I expect to see it on display at the Museum of Modern Art as a sample of video game artistry. But stripped of its cosmetic appeal and judged solely on its playability, *Solar Sailer* deserves a place in the Video Game Hall of Shame.

Solar Sailer is the last entry (I hope) from Mattel's video game trilogy *Tron*, which was based on the Disney movie. The first game was *Tron Deadly Discs* in which you avoid treacherous frisbee-like discs. *Maze-A-Tron* was Mattel's second *Tron* game and it has much in common with *Solar Sailer*. It is a stunningly beautiful game that unfortunately violates the first rule



of videogamedom: Thou shalt be fun to play. *Maze-A-Tron*, like *Solar Sailer*, has two phases that almost make it two separate games. Because of the extraordinary level of difficulty with *Maze-A-Tron*, I never (after hours and hours of practice) made it to phase two. Ditto *Solar Sailer*.

Like its *Tron* cousins, *Solar Sailer* owes much of its plot structure to the world of computers. Perhaps too much. If you've never had the desire to see the microscopic guts of a computer and you don't know some basic computer jargon, it's very likely *Solar Sailer* will sail right over your head.

It's a complicated game, a trait that characterizes many of Mattel's efforts. Matters aren't helped by a vaguely written instruction manual that never fully explains its complexities. In phase one, the Solar Sailer (which is an abstractly designed object resembling a crossbow) must glide along seven concentric rings until it reaches the central ring. The screen is a work of art with a dazzling grid dotted with stationary tanks and energy bugs, and crisscrossed with flowing energy beams which carry the Solar Sailer. However, traveling on the energy beams quickly becomes boring, especially since there are seven tracks to conquer before reaching phase two. It simply takes too long to reach the goal. There's not a lot to shoot at either, and you have to remember much bothersome information like goal sector numbers which you punch in after reaching a certain point on the track. Sound complicated? You bet. And not too much fun either.

Solar Sailer uses Intellivoice, which is a gimmick that I don't particularly like. The synthesized voice reports on a lot of game functions like energy levels and sector locations that could be handled with an on-screen display.

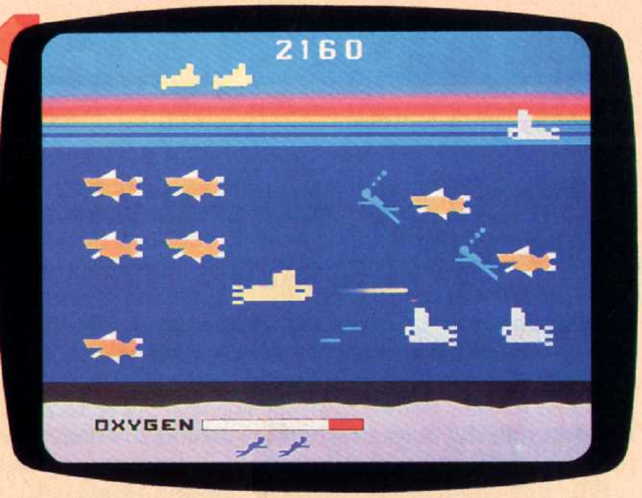
The closer you get to the center of the ring, creatures called Recognizers will appear, jump on you and carry you back a few tracks. It's quite frustrating. For me, this part of the game was so irksome that after three hours of playing I just decided that the game wasn't worth all the effort I was putting into it. Some Mattel games, like *Football* and *Golf*, are both challenging and fun to play. Others are also quite difficult, but tedious. *Solar Sailer* is a prime example of the latter.

SEAQUEST

Activision/Atari VCS

By George Kopp

We all live in a yellow submarine, but not for long. *Seaquest*, Activision's new undersea action game, hurls wave upon wave of attackers at your sub, and they show no mercy. Killer sharks to the right of you, enemy subs firing torpedoes to the left of you and your oxygen running low all the time. It's as fast and crazy as any game we've seen.



You are given three subs in which to pick up divers. Why they need to be rescued is anybody's guess—they are impervious to the killer sharks and the torpedoes, both yours and your enemies'. The attackers make the same mistake the British soldiers made in the American Revolution. While you can maneuver your sub all over the place, they stay in neat little rows, making them a lot easier to blast. The divers swim along in the rows with them.

After you've picked up six divers you bring them to the surface and collect your points for the fish and enemy subs you've destroyed. You also get a breath of fresh air—but danger lurks. An enemy sub patrols the surface, and while you replenish your air supply you can't move—but he can. If he smashes you, you lose a sub. In fact, if anything smashes you, you lose a sub. Except a diver, of course. You pick them up just by cruising into them. They go "ping."

Points for killing attackers increase as the game goes on, and there are bonus points for surfacing with all your divers when your oxygen is plentiful. (A gauge on the bottom of the screen shows your supply.) You also get bonus subs at every 10,000-point interval. If you surface before you have six divers, you get more air but lose a diver. There's also a big temptation to keep your thumb on the fire button, since you get continuous fire, but if you break the surface firing away, you blow up.

There are two difficulty levels. The easy game gives you fast-firing torpedoes, and the hard game is slow-firing. The fast game is a lot more fun, especially since the longer you go the more attackers you face, and you have a better chance of staying alive with the fast setting. The graphics are vintage Activision, which means they're good, but once you get the hang of it, *Seaquest* is a little like shooting fish in a barrel. Still, it sure can be fun to rack up those points.

The enemy sub on the surface only moves from right to left. If it's on the screen, surface to its right. If it's not on the screen, stay as far left as possible.

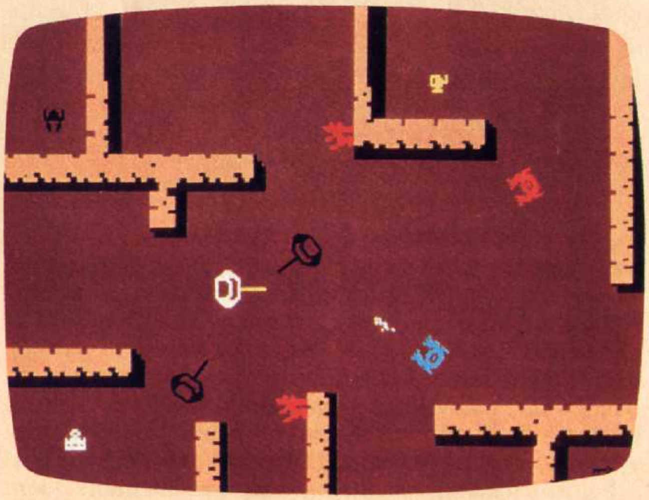
SWORDS & SERPENTS

Imagic/Intellivision

By Phil Wiswell

No matter how good you are at video games and no matter how much you study the rule book, you're going to need help to beat this adventure game. I know you're not used to that, but believe me: You will never be able to break into the Serpent's Lair on the fourth floor, your ultimate challenge, without the help of a second player.

Why do I say that? Because the one-and two-player games are very different, the latter being most exciting and enjoyable. Of course, one player can have lots of fun moving his warrior prince around the maze-like hallways and rooms in search of treasures. The prince carries a sword, his only weapon against two kinds of enemies—one that chases him into a swordfight and another that hurls fireballs from a safe distance.



Each floor plan is different, though the treasures are in the same places from game to game, and each has a stairway leading up, another leading down, plus scroll rooms where you can teleport around the dungeon. But there are other scrolls that grant magical powers—such as invincibility, fast feet and a healing spell—that are useless to the lone prince. Spells are only used in the two-player version.

The interesting thing about this two-player cooperative game is that the players play different characters and have different roles (even the plastic keypad overlays are different). The second player takes the part of an elderly wizard who can give the prince special powers, but is powerless to protect himself. Thus, the two must work with total cooperation, and the prince must now defend both of them if they are to reach their destination—the Serpent's Lair. I don't want to ruin the game for anyone, so I will say only this: The prince can try everything in his power yet never break through the walls to the serpent. Only the wizard can do this, *if* he has acquired the proper spell.

Even after numerous games of *Swords & Serpents*, the player who does not bother to map out the dungeon floors can easily find himself lost. You never have any indication of the "big picture", only the section of the dungeon where you stand. And when you've gone in circles without finding a single treasure, reality will set in: This is not a game you can memorize in a day or two.

Always use the Reverse button when sword fighting. Wait for an opening, then let go of the button.

CENTIPEDE

Atari/Atari VCS

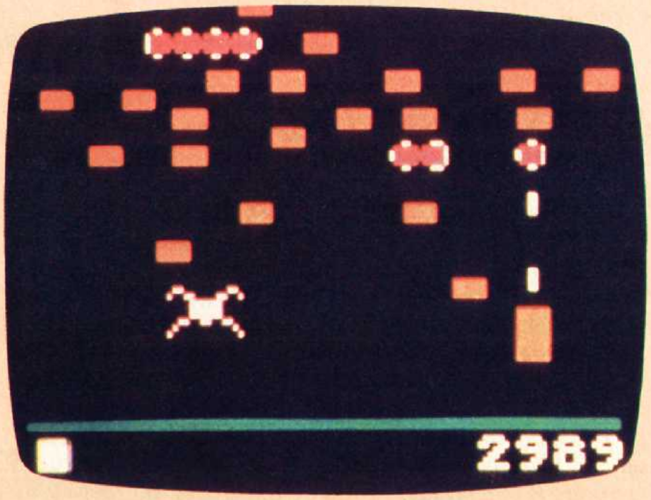
By Marjorie Crane

In my younger days, I had a morbid fear of bugs and other small things that go creep in the night. No matter how hard you try to escape them, they sneak up behind you when you least expect it and scare the pants off you. Then Atari came up with a game that enabled you to get back at those repulsive insects, *but* you had to pay a quarter to do it. Until now. Now you can get your revenge at home on your 2600.

Centipede is the newest arcade adaptation for the VCS. The graphics in this version do not compare to the arcade or 5200 versions. You've got a rectangle instead of an elf with which to shoot at the flying spiders, stationary mushrooms, scampering scorpions and falling fleas. The mushrooms are merely small blocks which in no way resemble anything edible. The scorpion and the spider, however, are reminiscent of the other version. In short, the graphics are nothing to write home about.

The play and action of the game, however, are everything the graphics are not—exciting, challenging and fast-paced. As in the arcade game, you are pitted against a variety of insects and other garden pests. Your object: Kill everything in sight including a leggy centipede which winds its way down the screen through a maze of mushrooms. The trouble is, each time you hit it, it breaks up into segments—small segments—that are very hard to get into your gunsights and destroy.

As if this task isn't hard enough, you also have to contend with a giant spider which weaves from side to side and tries to kill you. Additionally there are fleas that, apparently tired of dogs, fly down from the top of the screen straight at you. On higher levels, while all this is going on, a scorpion races in and out of sight, poisoning the mushrooms. This allows the centipede to



attack even faster.

Each time you clear a screen, you progress to the next level and at each successive level the action gets faster and faster until you are practically blinded by the blur of movement. The action is no less than frantically exciting. Although it doesn't compare to the arcade or 5200 versions, this *Centipede* adaptation is one of the best VCS games available.

Although it doesn't say so anywhere on the package or in the instructions, in the easy variation (signified by the teddy bear on the screen) only the centipede can kill you. Spiders and fleas turn into sitting ducks and you can rack up astronomical scores. While small children might find this a satisfying way to play, for anyone else it's an exercise in "insecticide."

If the first spider comes from the left, so will the second. Then the third and fourth will come from the right, the next two from the left and so on.

TRUCKIN' 🕹🕹

Imagic/Intellivision

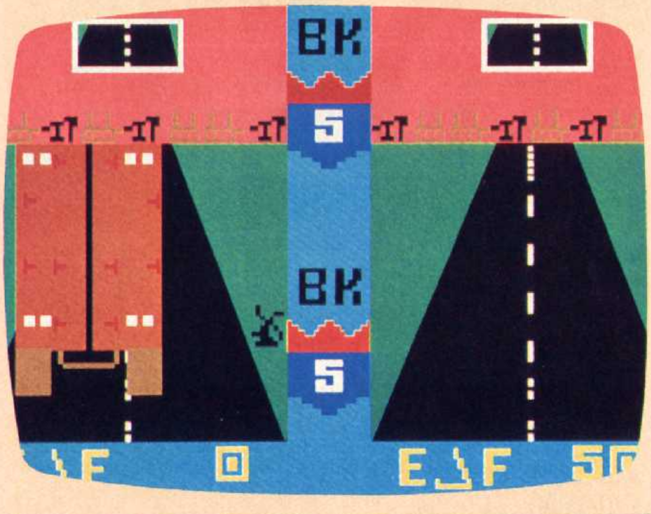
By Phil Wiswell and Bernie DeKoven

This unusually detailed simulation of long-distance trucking is played on a totally accurate map of our national highway system by one or two players simultaneously. It's the kind of game that was made for teaching U.S. geography through a fun medium, and if that's what you're after, you might call *Truckin'* sophisticated. But if your favorite race game is *Turbo*, you might call *Truckin'* disappointing.

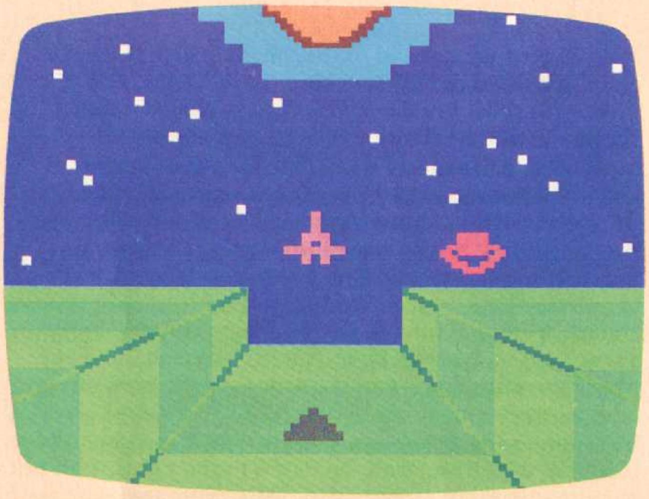
The designer went to great lengths to make a game with strong strategic complexity—Intellivision's forte—that would use the entire U.S. highway system for a gameboard. However, gameplay and graphics seem to have taken a back seat, and though *Truckin'* has as many different scenes as *Turbo*, they are blocky and symbolic instead of realistic. And we objected to the use of a cracked windshield to denote an accident. *Heads* crack windshields, after all.

As with most Intellivision software, the two-player version is best at creating a competitive game atmosphere, particularly with *Truckin'*s split screen which allows each driver to choose different routes to the same destinations. In one version of the game, players simply drive through the eight cities listed on the itinerary to end the game. You can follow the routes in a good atlas—indeed, you may have to—and you can change from one road to another at crossroads in the cities. The second variation is more detailed, allowing players to haul corn, gravel, cattle or milk from city to city, earning money above the $1500 they start with. In both games, money is spent on accident repairs and for gasoline, which can only be found in the cities. Run out of gas in the desert and the game is over.

All this strategy and thinking is great, but when you try to apply even the simplest laws of driving you end up needing a tow truck. There are other trucks on the roads, going in both directions, and you can pass them at any speed from one to 94 mph, but it is a random computer decision each time as to whether you'll pass the other truck safely. An accident at any speed is costly. The other truckers lurch their vehicles wildly across both lanes, and just when you think you've done everything right, the windshield cracks and you must wait for repairs. Unfair! There should always be some mental or physical response to overcoming an obstacle, but we haven't found one in *Truckin'* yet and are beginning to doubt it exists.



If you have to make sure you get by an approaching truck, slow down to about five mph when the truck first appears on the horizon. Wait; it will often disappear. Also, never leave a city with only a quarter of a tank of gas.



STAR STRIKE

Mattel M Network/Atari VCS

By Noel Steere

Why in the world does Mattel save their good work for Atari VCS games? First they make sports games that even rival their own. Then they make an almost exact copy of *Astrosmash*. Now they make a version of the masterpiece *Star Strike* that is probably even better than the Intellivision version.

The Atari version has the same object—destroy a space station before it destroys the Earth. The way the space station destroys the Earth is by lining its trench up with Earth and then using a missile silo as a cannonball by shooting it out of the trench.

There are some differences between the two formats. First of all, you can only bomb in the trench and fire when you're out of it. You must bomb eight silos instead of five. There is only one enemy spaceship at a time and there is a new type of alien enemy—a meteor. This meteor will scramble your controls for a while if it hits you. By "scramble" I mean you become disoriented—pushing up on the joystick might move your rocket down, left might become right, etc. It's never the same way twice.

If you succeed in bombing all eight silos a wondrous thing happens. The space station will speed up, turn multi-colored and melt. However, you get no points for this. Why? Maybe Mattel thought that if points were awarded in this version it would definitely make it better than the Intellivision version. And they wouldn't want to do this. After all, they're still in competition with Atari.

If you're hit by a scrambler meteor, push up on the joystick instead of trying to control your rocket. This maneuver should keep you from crashing. Another choice is to stay still and fire like crazy.

SPACE PANIC

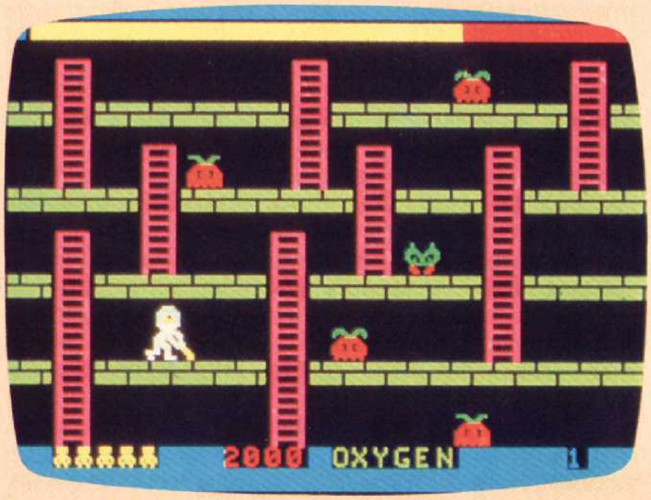
Coleco/ColecoVision

By Michael Blanchet

If you thought *Donkey Kong* was the first game to use ladders, guess again. In 1980, Universal unveiled *Space Panic*—the first ladder/obstacle course video game. After a short run in the game rooms, *Space Panic* has returned—this time as a ColecoVision cartridge. Although *Space Panic* is one of the lesser known titles in the Coleco library, it stands out as one of the best looking and most challenging games Coleco has offered to date.

Space Panic should probably have been named *Space Gravedigger*, because you spend most of the game either digging or filling in holes. The object of the game is to clear a multi-level playfield of aliens. There are three different bad guys: Creatures, which look like tomatoes; Bosses, which bear a striking resemblance to beer pretzels; and Dons, the quickest and most cunning of the lot (which, by the way, don't look like much of anything). To do in your foe you must first dig a hole. When the creature falls in you must quickly bury it. Once this is done, the creature drops one level. In the case of a Don or a Boss, it will be necessary to dig two or three holes that are in line with one another. Bosses must plummet two stories while Dons must fall at least three before they are beaten.

The playfield consists of four levels and a ground floor, all of which are connected by a network of randomly placed ladders. Your man, an astronaut, moves from tier to tier by way of the ladders. He can also make a quick descent by leaping into any of the holes he has dug. The Creatures, Dons and Bosses can also descend and ascend via the ladders. They cannot, however, jump through a hole. If they happen upon an opening in the floor, they will, of course, fall in.



Eventually they will crawl out—and unless you move swiftly and bury them, they will reemerge as a member of the next highest species: Creatures to Bosses, Bosses to Dons.

What separates *Space Panic* from most of Coleco's coin-op to home translations is the fact that it does get harder as the game progresses. Coleco's *Turbo*, *Donkey Kong*, *Space Fury* and *Donkey Kong Jr.*, for example, offer little or no additional challenge once the player advances to higher levels of play. *Space Panic*, on the other hand, is full of surprises. Most importantly, it doesn't get too hard too quickly.

The game opens with you vs. three of the tomato-like creatures. Once this lot is ousted, a second wave of five tomatoes appears. In the third wave you'll face the maximum number of creatures (seven). When the fourth begins, you'll face a new foe.

The instruction booklet that accompanies *Space Panic* is typical of Coleco—it tells you very little about game strategy. One "hint" says, "Move your spaceman to a wide section of the floor and practice digging a hole and refilling it. Note how wide the hole is." Such gibberish barely requires comment.

If the idea of burying monsters repulses you, wait until you hear the sound effects. They range from funny and realistic to eerie and downright disgusting. The opening jingle starts the game off on a humorous note. But the most grotesque sequence, both to the eye and the ear, is when a creature catches your astronaut. As his space suit (not to mention his innards) is torn to shreds, you'll hear a gruesome cross between "splat" and "smoosh." The pursuit of realism has just taken a turn for the worse.

Move to the uppermost portion of the playfield and seal yourself off by digging a hole on either side of you. Knock Dons and Bosses down on the aliens moving below.

DEMOLITION HERBY

Telesys/Atari VCS

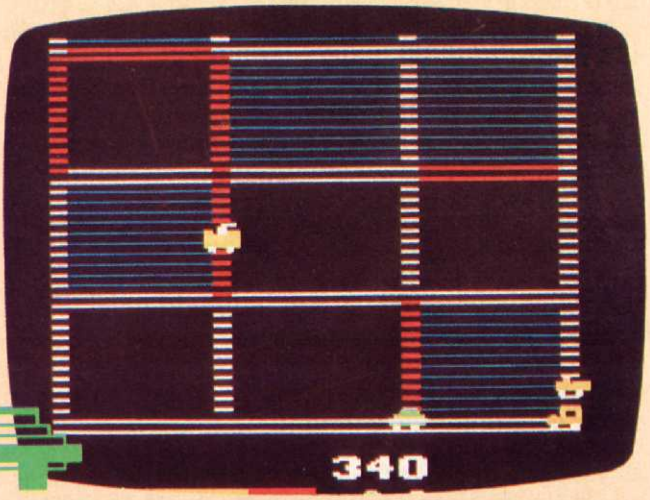
By William Michael Brown

"S-U-U-N-N-DAY at the Orient Speedway in Central New Jersey!! SEE Atlanta's SCREAMIN' STEVE Thornberry in a vicious SPEEDWAY DUEL TO THE DEATH at OVER 200 MILES PER HOUR! SEE TERRIFYING TOM Allen in a 50-car DEMOLITION FUNFEST—Tom's Motto: TAKE NO PRISONERS! S-U-U-N-N-DAY! FUNNY CARS! BIG DADDY ED ROTH!! *S-U-U-U-U-N-N-N-N-DAY!*"

If a hyperactive radio announcer pitching weekend group therapy for automobile fetishists was once enough to get your candystripe-tangerine-flake heart beating faster, *Demolition Herby* is for you. While the game doesn't exactly exude the aroma of burnt rubber, warm beer and petroleum byproducts that always went with "S-U-U-N-N-DAY!" at your local Speedfreak Heaven, it does offer enough fast action and joyful aggression to satisfy the most adrenaline-ridden and Castrol-bespattered gearhead.

As Herby, your primary job is to pilot your green racecar around all four sides of the 30 squares in the game's three-by-10 grid. The white lines around the squares turn red as you travel over them, and once each square has been "lapped" in this fashion, it turns black, netting you points and extra fuel (there's a gas gauge at the bottom of the screen to help you see how you're doing).

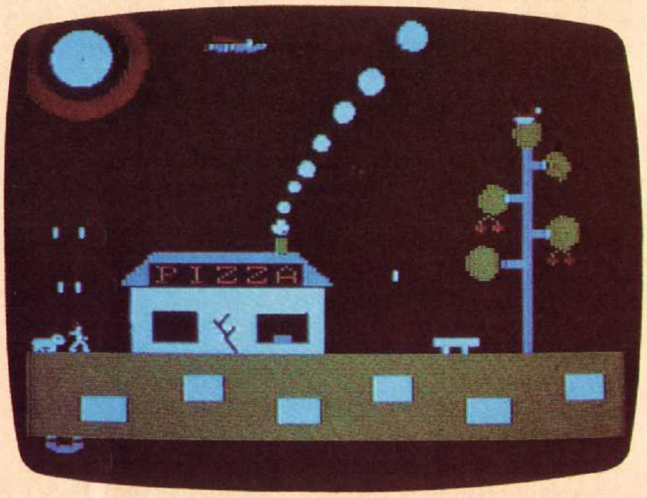
But Herby's job isn't his joy—that's reserved for smashing up a trio of chase cars that follow him wherever he goes. You can't ignore them: They turn your red lines back to white whenever they travel over them, and once they get on the same line you're on, they're much faster than you. They'll usually gang up on you too, and if you get bumped three times, you're out. Of course, you can always push the Fire button to go into overdrive and get out of a tight spot.



But who wants to ignore them—after all, Demolition is Herby's first name. Although it's pretty easy to master *Herby*'s sneak-up-behind-em bumper-cars technique in the first skill level, the second and third levels demand lightning reaction times.

The graphics are simple, and so are the sound effects—this is no *Turbo* or *Enduro*. But where those driving games featured realistic graphics, *Herby* emphasizes a game-play design that is tight, involving and whimsical enough to be the equal of anything available for the VCS.

Hit the fast car first and then nail the slower ones. Then use overdrive to pick up fuel fast.



THE ARCADE MACHINE

Broderbund/Apple II

By Paul Backer

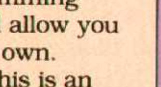
We all think we can create games that are better than the ones we play. But many of us don't know how to program in BASIC let alone machine language. How do you get around that little obstacle? By using the *Arcade Machine*—a disk that lets you make your own games without being a programmer.

The Arcade Machine is really quite a remarkable tool for anybody who wants to design their own games. It allows you to control sound, movement, rate of fire and anything else you might be able to think of—all without the tedium of making your own program from scratch.

What the program does is ask you questions about what you want to do. First it offers you the main menu, which allows you to create or edit any part of a game you're designing, or to play any one of the six games on the disk. If you choose to create or change something, all you have to do is push the appropriate number and you will go to a new menu which is even more detailed. Best of all, the program allows you to edit any one of the games and then play it to see what effects your changes have had, so you don't have to grope blindly through the program.

The Arcade Machine is incredibly versatile and easy to use. But you have to remember that it is just a tool—it won't transform you into an instant programming Michelangelo if you have no talent. But it will allow you to create a game that you can truly call your own.

So, if you're thinking of designing games, this is an absolute must-have. It's user-friendliness and refreshingly clear instructions guide you step-by-step through the making of a game, and it will also teach you about graphic animation and artifacting. Who knows? You might invent the next *Pac-Man*.



ZORK I, II, III

Infocom/Atari 400/800

By Paul Backer

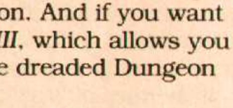
Up to now in adventure games you were brave but totally illiterate; the character you commanded had an IQ lower than the average shoe size, because he could only handle two words in a row. Now that problem has been dealt with by the *Zork* series by Infocom. These games can understand complete sentences and have vocabularies of well over 500 words. That's probably more than three times the number of different terms in the BASIC programming language.

The three *Zorks* are part of a series. *Zork I* puts you at the beginning of the great dungeon. You have to get in the house and explore the higher levels of the dungeon. Then if you are ready or willing to continue your exploration you can get *Zork II*, in which you get to explore the middle of the dungeon. And if you want to finish off the dungeon get *Zork III*, which allows you to explore the bottom and meet the dreaded Dungeon Master.

The *Zork* games are an adventure-game purist's dream. They have absolutely no graphics and all the action is described in words. It reads pretty much like a good pulp fiction paperback, with some fascinating riddles thrown in. But you still have to get the phrasing almost perfect in order to achieve an above average understanding with the computer.

Speaking of understanding, another thing that sets the *Zorks* apart from most other games is that they are definitely not easy. As a matter of fact, the *Zorks* are excruciatingly difficult. You can go over the same thing time and time again without even realizing that you should do something with it. For example, kicking the dragon in order to get him to follow you (*Zork II*) doesn't sound like the most obvious solution. But if you are willing to spend the time to puzzle it out, this game will provide you with lots of fun.

These games are not for the short-tempered or the weak-brained. But if you are a stout individual with a lot of common sense and a warped imagination, these games are probably the best software buy for your dollar.



Unlike other companies, Infocom doesn't leave you all alone when it comes to dealing with their games. Just call (617) 492-1031 and ask for the hints department. The people over there are extremely nice and helpful, and though they probably won't give you a straight answer, they will give you an extremely helpful hint. Or, if you don't want to keep calling them, you can buy the complete map to all three games and some hints for about $10.

PICNIC PARANOIA

Synapse/Atari 400/800

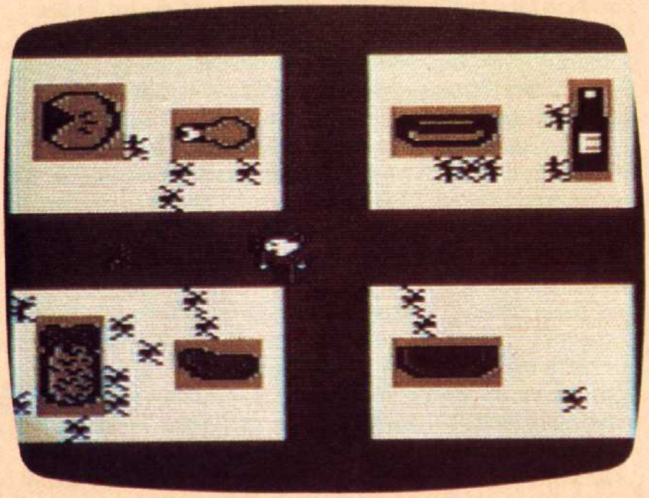
By Jason Schreiber

George wants to have a nice, friendly and even peaceful picnic. He's laid out some food—a watermelon, a pineapple, a can of soda, a hot dog, etc.—on four picnic tables covered with neat tablecloths. Just as he's ready to dig in, *they come*. They are insects (of course)—ants, wasps and spiders.

Armed with only a fly swatter, George must defend himself and his food. The ants team up to carry the food off the table. If you manage to stop the ants (via swatting) you can drag your food back to the table, but it takes a little practice. The wasps fly just beyond swatting range, suddenly swooping down to sting and paralyze ol' George, whose face turns red for five seconds. Don't despair. With the right moves you can swat these little buggers too. The spiders really don't care about you or your food. All they are interested in is weaving their webs. The webs are an obstruction which George can swat away. Watch out. Should George dare to cross the spiders' path, he will be stung for three seconds. Each one of these bugs is a menace by itself. Combined, they will give you a fierce run for your food.

Each round lasts for 90 seconds. Although the infesting insects come faster and in greater numbers, their point value is increased every round. When the round ends you are awarded points for the food (if any) that remains. The point value for the food is doubled if the food is on the table (not the grass). For the first 5,000 points, and for every 10,000 points afterwards, you are awarded a can of bug spray which, at your command, will come onto the screen and destroy all the insects (the spider webs remain intact), while providing you with a short rest.

The game ends when the ants have carried all the food off the picnic area, or when you have completed the 15th round (not an easy task). By then your score should exceed 100,000 points.



Picnic Paranoia (a truly fitting name) is like having your cake (and your watermelon, and your hot dog and your pickle) and eating it too.

THRAX LAIR

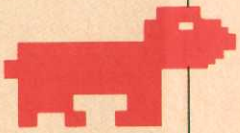
Rantom/Atari 400/800

By Norman Schreiber

Thrax Lair is like a bag of salted peanuts. The salt makes you keep on eating them. Are you full? Do they taste good? Is there something else you could be doing or eating? None of these matter. The salt drives you on. It makes you shovel them in come hell or high burp.

The game pits the mighty bird-like Tarp against the Thrax creatures, a kingdom of nasty insects—Worker, Soldier, Stinger and Monitor. Tarp flies heroically up a sinuous, tortuous tunnel. The joystick will take Tarp forward (i.e. up) but not backward. Crawling through the muck of the various twists and turns are the entomological terrors. Tarp can lose them or waste them. Point the joystick in the direction you wish to shoot and press the fire button. Of course Tarp, too, can be destroyed. You start with three Tarps and get an additional Tarp with 10,000 points. Points come from speed and kills. Each of the four beasties is worth a different amount of points (ranging from 30 to 250). For the 350-point premium bugs, you must zap their eyes for a kill. The faster Tarp travels (and the more speed points it gains) the harder it is to do fancy shooting. The more slowly you travel, the better your shooting but the lower your score.

Thrax Lair certainly is a logical idea for a game. The tragedy is that it's only slightly better than boring. It offers a modicum of tension, a degree of surprise and an opportunity for ever higher scores. Those creepy crawly insects are not threatening—they're irritating. There's no more joy in killing a lot than a little. Increasing your score is not so much an end as a vehicle by which you get to play another mildly interesting and not terribly involving game.



MARAUDER

Sierra On-Line/Atari 400/800

By Paul Backer

If you're more than a little tired of defending cities or obscure planets from an enemy who keeps coming on with unrelenting fury, *Marauder* is your chance to turn the tables.

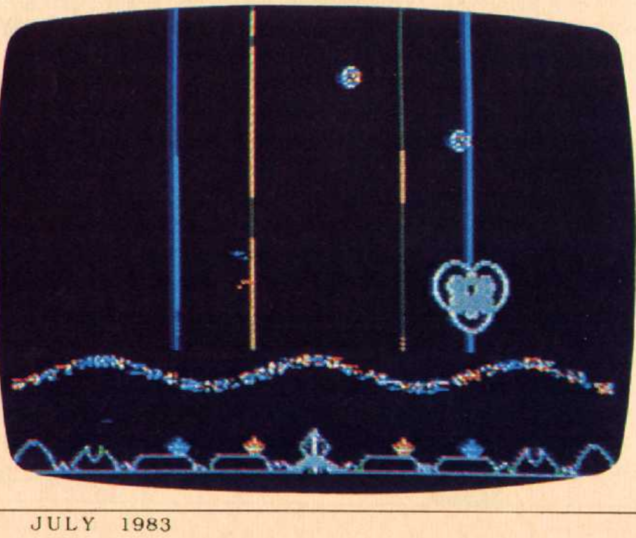
There are two stages in *Marauder*, each stage representing a completely independent game. The first stage is a hybrid of *Space Invaders* and *Missile Command*, with you as the Space Invader. The second stage is an interesting variation of *Berzerk* in which you have to go through mazes and blow up a main computer. (The most surprising thing about these two games is that together they take up only 32K of memory.)

In the first stage you are provided with a spaceship, with which you have to make holes in a force shield protecting the target-city's defense. The defenses consist of missile bases, fireball launchers and laser cannons. Of course, the aliens have every other advantage: They can fire through the shield without damaging it, and all the odd-numbered screens have moving shields, so by the time you make a hole in one shield, it will have moved away from your target.

The second stage is *Berzerk* with some very interesting changes. First, you can only see the robots when they are in the same corridor as you. Second, you can actually have some measure of success by blowing up the main computer and watching the spectacular explosion. Then, of course, you are transported back to the beginning of a new and harder level—but that's still an improvment on *Berzerk*, where you just keep going on and on and on.

Marauder has excellent graphics, good game sounds and absolutely glorious explosions. When playing the first stage, you might enjoy running into a projectile just to watch your ship explode. The game also provides a rapid-fire feature for the first stage; all you have to do is keep the button pressed down.

Sounds like a fine game for everybody, right? Wrong—this game holds very little challenge for better-than-average players. In the second stage you can outrun everything on the board from enemy robots to their bullets. You can also run into walls and enemy robots and have absolutely nothing happen to you. All you have to do is stay to the right or left side and you will be completely safe from the fireballs.



So, if you are just starting out playing action games, or if you have a younger member of the family who likes to play games but finds most of them too hard, *Marauder* is an absolute must-have. But if you are an experienced player, the novelty of this game will soon wear off.

If you are playing an odd-numbered screen in the first stage, all you have to do is blow a hole in the shield and move along with it. This saves you the trouble of blowing away most of the shield.

ARMOUR ASSAULT

Epyx/Atari 400/800

By Paul Backer

If you're tired of searching dungeons and knocking out killer aliens, there is an alternative: strategy-simulation games. They allow you to command armies and wage war against a computer or a human opponent. *Armour Assault* is one of the newest entries in this field.

In *Armour Assault* you're fighting a battle not yet fought between the NATO allies and Russia. You are in charge of up to six tanks, which range from light to heavy armour and armament, and thus vary in how fast they can move and how much damage they can do to an opponent. There are many different terrain types including water, trees, blown-up tanks and so on. Some are impossible to travel over while others are just difficult and cost you precious movement points. Also, there are two different firing modes called Opportunity Fire and Direct Fire. In Direct Fire, you fire a missile which will cause 25 percent more damage than Opportunity Fire, but your store of missiles is limited. Opportunity Fire doesn't use up a missile, but it does less damage. Last but not least, all tanks have their own accuracy ratings, which means they frequently miss their targets. The lighter tanks are generally faster and more accurate, but can't survive or cause as much damage as heavier tanks.

Besides its overall excellent graphics, *Armour Attack* allows you to use your joystick to conduct your firing and movement at the same time. This, however, is extremely difficult to master. You can play any one of twelve scenarios, using any of twelve tank groups. If you don't like the preset scenarios, you can modify existing ones or create your own using the incredibly clear and concise instructions provided.

The sound effects, though, are annoying. They may be realistic, but who wants to listen to groaning tank engines all day? It's also a bit discomfiting that the game doesn't tell you when you win—you have to figure that out by yourself. It can have its advantages though—you can design your own victory conditions and play for as long as you want.

This game is not for people who hate reading instructions. It's as complex as chess, and figuring out how to play it can take a long time. But if you're willing to make the effort, this game is truly rewarding.

Use Opportunity Fire instead of Direct Fire—it will allow you to hit your opponent many times instead of just once. It's also much more accurate.

CHOPPER RESCUE

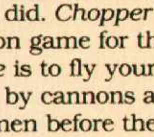
Microsoft/Atari 400/800

By Paul Backer

They can't make a better mouse trap, but they can make a better *Defender*—and they did. *Chopper Rescue* is just that. It is a fast-moving action game for the Atari 800. The object of *Chopper Rescue* is to fly your chopper through a maze protected by cannons and flying aliens and pick up all your men before the time rings out.

You start out with a helicopter which can drop bombs or fly straight. You can even curve your bombs, to get at those hard to reach spots. The game is very much like most other *Defender* games except that the humans you are protecting are completely indestructible. You have to pilot your chopper and pick up all the humanoids before you are moved on to the next screen. (There are three different mazes.) The opposition consists of three varieties of flying aliens, floating mines and two different types of cannon. The game is extremely tough, your only advantage being greater speed and maneuverability

This is a terrific game. Its strange combination of *Defender*'s save the humans goal and *Berzerk*'s element of being chased in a maze hits just the right spot. Another great feature is that when you fire a bomb or a missile, it keeps traveling beyond the screen.

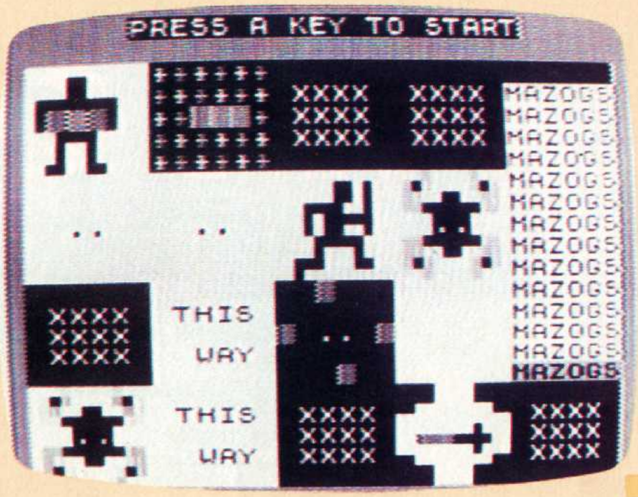


MAZOGS

Softsync/TS 1000

By Fred Blechman

You enter a giant 2,728-cell maze, looking for a glittering treasure. You are unarmed, unless you can find a sword. Lurking throughout are hungry Mazogs, who will attack you if you try to pass them. If you have a sword you can kill one Mazog after a fierce struggle—but the Mazog's blood destroys your sword. If you don't have a sword, you only have a 50/50 chance of winning—and if you lose, you are digested by the Mazogs and your quest is over. Prisoners are locked up in cells throughout the maze. If you find and question one, he'll tell you which way to get to the treasure—but the route will only last for ten seconds before it disappears.



The maze is 62 cells wide and 44 cells high so it's easy to get lost, especially since you normally can't see more than two cells in any direction. You can request a larger view (16 by 16 cells, with you in the center), which gives you five seconds to spot Mazogs, swords, and prisoners near you—and maybe even the treasure. Footprints in the maze will show where you've been.

If you find the treasure, the next trick is to get it out of the maze by retracing your path—but you can't carry the treasure and a sword at the same time, and there are still Mazogs lurking beside the path back.

The graphics depict you as a moving figure with arms and legs, either with or without a sword or the treasure. You run along the pathways, controlling your direction with four keys. The mazogs—fierce four-legged beasts—are continuously in motion in their cells, and in battle they go into a wild dance. If you lose, they crunch you with their mandibles while their eyes blink victoriously.

At the end of the game—win or lose—you can see the entire maze on the screen, including the proper path. Each game maze is new and different. And lest you think you can conquer this game quickly, I've only described the Try It Out game. There are two others—Face a Challenge and Maniac Mobile Mazogs—where you can either starve to death wandering around the maze, or the Mazogs can chase you instead of waiting around for you. Highly recommended—unless you already have high blood-pressure.

Use the V-key (VIEW) often to locate prisoners, swords and Mazogs—and perhaps the treasure—in your immediate section of the maze. However, in some versions of the game this costs you points.

THE COMPLETE

...for all Timex and IBM PC computer users

TS 1000

CREATIVE SOFTWARE has one game for the Timex/Sinclair 2000 Color Computer in the Arcade category. Company's Pick: *Trashman*. Who wants to be a fearless adventurer, heroic starship captain or invulnerable superhero when you can be a garbageman? Humorous maze game requires player to literally clean up the city while avoiding giant bugs attracted by the refuse. **Price unavailable.** *Address: 230 E. Caribbean Dr., Sunnyvale, CA 94086.*

HES has five games for the Timex/Sinclair 1000 in the Strategy and Arcade categories. Strategy games include *Reversi 1000* and *2K Fun Pack*. Arcade titles are *Gulper*, *Sabotage* and *2K Trek*. Company's Pick: *Gulper*. Says company executive Michael Humphress, "It's a Pac-Clone. It incorporates 15 mazes and nine play levels calling for players to chase, capture and evade." Cassette only. **$15.95.** *Address: 71 Park Lane, Brisbane, CA 94005.*

MELBOURNE HOUSE has 12 games for the Timex/Sinclair in the Arcade and Strategy categories. Arcade games include *Space Trek*, *3-D Monster Maze*, *Pyramids* and *Catacombs*. Strategy titles are *Reversi*, *Wallbuster* and *Combat Fighter*. Company's Pick: *3-D Monster Maze*. The monster is after you, and what makes it all the more horrible is he's in 3-D! Quick-witted player must elude the fast and furious monster in order to gather his treasure. 16K required. Cassette only. **$14.95.** *Address: 333 E. 46 St., New York, NY 10017.*

MINDWARE has nine games for the Timex/Sinclair 1000 in the Educational and Strategy categories. Educational titles include *Crossword*, *Anagrams*, *Word Test* and *Graphic Gulf*. Strategy games are *Gulp*, *Pilot* and *Cosmos*. Company's Pick: *Cosmos*. Utilizing various computer readouts, players must wage a hyperspace laser battle against an unknown enemy. Game is played without graphics. Cassette only. **$15.95.** *Address: 15 Tech Circle, Natick, MA 01760.*

ORBYTE SOFTWARE has four games for the Timex Sinclair 1000 in the Strategy and Space categories. Among the Strategy games are *Expo Tic-Tac-Toe*, *Salvo* and *Megamind*. In the Space category it's *Vault of the Centaurs*. Company's Pick: *Vault of the Centaurs*. Arcade-style fast action space game finds the player piloting a space craft through a peril-laden cavern in search of a mysterious power capsule. Cassette only. **$19.95.** *Address: PO Box 948, Waterbury, CT 06720.*

RESTON PUBLISHING has eight games for the Timex Sinclair in the Arcade and Strategy categories. Arcade titles are *Demolition* and *Invasion Force*. In the Strategy area there's *Monarch*, *Escape From Schazzar* and *Nowotnik*. Company's Pick: *Monarch*. It's good to be the king, but it isn't easy. Simulation game requires players to literally run the country, formulating budgets, allocating resources, the whole bit. **$14.95.** ***Address: 11480 Sunset Hills Rd., Reston, VA 22090.***

SOFTSYNC has 15 games for the Timex/Sinclair 1000 in the Arcade and Adventure categories. Arcade titles include *Mazogs*, *Meteorites*, *Alien Invasion* (16K), *Red Alert* and *Space Raid/TS Destroyer* (2K). Adventure games are *Space Commando*, *Shark's Treasure* and *The Adventures of...* Company's Pick: *Red Alert*. Scramble into your ship and check the computers. The screen says you've got plenty of fuel, bombs and missiles, so go for it. Menaces from above and below attempt to stop your ship as you try to wreck an alien planet. 16K required. Cassette only. **$14.95.** *Address: 14 East 34 St., New York, NY 10016.*

GAMER'S GUIDE

— the biggest Who's Who of computer games

TIMEWORKS has six games for the Timex/Sinclair 1000 in the Strategy and Adventure categories. In the Strategy area there's *Wall Street* and *Presidential Campaign*. The Adventure category includes *Star Battle*, *Robbers of the Lost Tomb* and *Scyon's Revenge*. Company's Pick: *Scyon's Revenge*. Armed with a trio of onboard navigational systems, supercharged phasers, hyper warp drive and the most advanced tracking/view system in the Star Fleet, you must defend the galaxy from the infamous, and similarly armed, Scyons. Cassette only. **$19.95.** *Address: Timeworks Inc., PO Box 321, Deerfield, IL 60015.*

TIMEX has 22 games for the Timex/Sinclair 1000 in the Strategy and Arcade categories. Strategy games include *Chess and Chess Clock*, *The Gambler*, *The Puzzler*, *Stock Market Game* and *Strategy Football*. Games in the Arcade area are *Trap*, *Bat Cage*, *Frogger*, *Bigflap Attack* and *Ram Runner*. Company's Pick: *Bigflap Attack*. You're being attacked by giant birds. To defend yourself and score points you must shoot the bird right between the eyes. Program provides 10 levels of play with unlimited scoring possibilities. **$12.95.** *Address: PO Box 2655, Waterbury, CT 06721.*

IBM PC

ACORN SOFTWARE has two games for the IBM-PC in the Strategy category. Games of Strategy are *Everest Explorer* and *Lost Colony*. Company's Pick: *Everest Explorer*. Simulation game offers text-generated challenge as players attempt to work out the logistics of getting their mountain climbing party successfully up and down the great peak. **$29.95.** *Address: 1945 Gallows Rd., 705, Vienna, VA 22180.*

APLOGICA has one game for the IBM-PC in the Arcade category. The game is called *Arcade Laser Zap*. Zap the aliens as they sweep across the void. **$35.** *Address: PO Box 535, New York, NY 10014.*

AVANT-GARDE CREATIONS has four games for the IBM-PC in the Arcade category. Arcade titles are *Lazermaze*, *Federation*, *Air Traffic Controller* and *Terran Jeopardy*. Company's Pick: *Terran Jeopardy*. The last outpost on Earth is under attack by columns of alien starships. You must blow the space invaders out of the sky. **$29.95.** *Address: PO Box 30160, Eugene, OR 97403.*

BELLA SOFTWARE has one game for the IBM-PC in the Arcade category. The Arcade title is *Bug Off*. Centipede-style bug shoot game features 15 levels of difficulty. **$34.95.** *Address: STE. 500, Citizens Bank Center, Richardson TX 75080.*

BRODERBUND SOFTWARE has two games for the IBM-PC in the Arcade category. The Arcade titles are *Apple Panic* and *Serpentine*. Company's Pick: *Apple Panic*. Forced to flee from pursuing apples in a multilevel mansion, you cleverly dig holes to trap your pursuers. **$29.95.** *Address: 1938 Fourth St., San Rafael, CA 94901.*

DATAMOST has two games for the IBM-PC in the Arcade category. Arcade games are *Space Strike* and *Pig Pen*. Company's Pick: *Pig Pen*. "We call it a reverse maze game," says company executive Sandy Wiviott. "You have to lay down the dots in a predetermined pattern. You can't move on to the next maze until all the dots are laid down in the proper manner and you manage to avoid the killer pigs." **$29.95.** *Address: 8943 Fullbright Ave., Chatsworth, CA 91311.*

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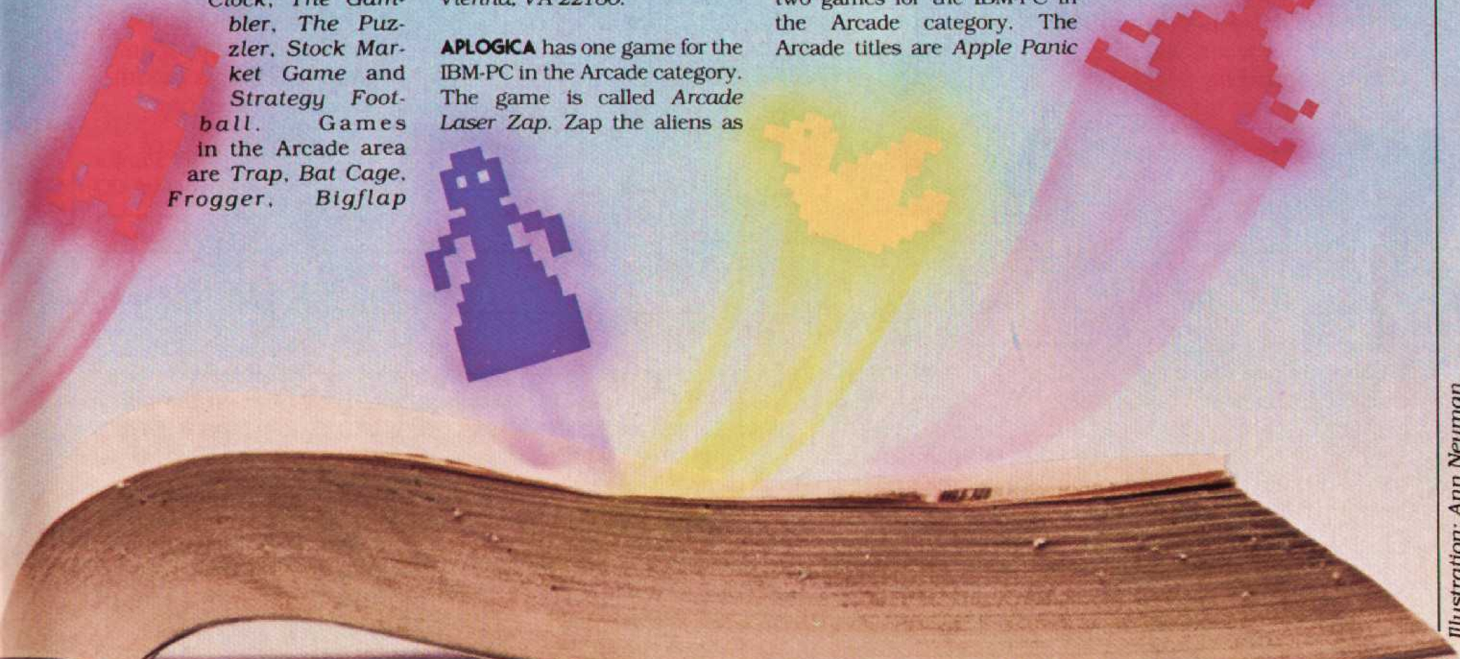


Illustration: Ann Neuman

Reader's tips

DONKEY KONG JR.

After a few days of playing *Donkey Kong Junior* for ColecoVision, I found all sorts of quirks. I think most of them are supposed to be in there, except one: On the Jump Board (third screen), when you get to the top two vines, cross off on the long platform and walk into the opening. After that, you'll find Junior on the vine below—but don't go down, go up. If you do it right, you'll go through the platform and all the way to the top on an invisible vine! How about that!

Todd Gutschow
Sheboygan, MI

ALPINE SKIING

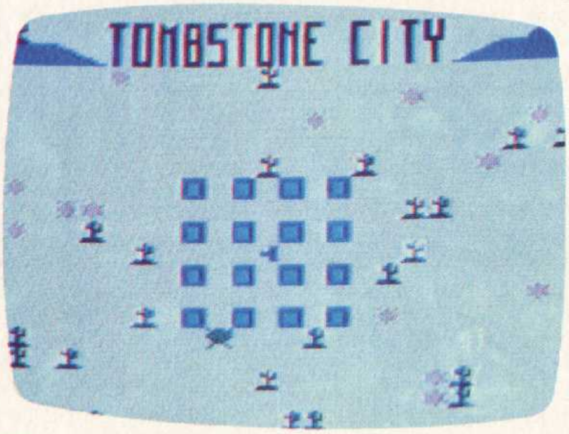
When you reach the jump, use the picture of the whole ramp. When the dot gets down to the last notch, that's when you press the button—and voila, you're airborne! Cruise on for at least a 1,200-point bonus.

Emil Martin
Vernon, NJ

ATLANTIS

Higher scores can be gained by using only one gunbase instead of three. For example, holding the joystick to the extreme right (or vice versa), the player can concentrate on the timing necessary to shoot the invading ships. Try playing Game Three (a beginner's level) before attempting the regular game. Of course, memorizing the opposite gun's firing pattern should be the next step. The center gun should be used for emergency blasting only, since you get fewer points for hitting targets.

Captain Draw
Chicago, IL



TOMBSTONE CITY

The Morgs appear in a pattern like reading a letter: from left to right and top to bottom. If you learn the pattern, you can more easily destroy the Morgs. Also, if the Morg is destroyed near a pair of cacti, the pair turns into another Morg which can be easily hit. It's helpful to eliminate cactus pairs since they create Morgs.

David Holloway
Henderson, NV

SPACE ARMADA

At the start of a new armada of invaders, clear the three left columns first. When the armada starts moving to the left, you'll then have more time to clear the lower levels of invaders. To get new bunkers, be sure to hit the flying saucers in the armadas when the invaders are invisible.

Jeff Mathews
Berkeley Heights, NJ

SUPER ZAXXON

To destroy the fire-breathing dragon, get your ship on the third height bar as soon as possible; you will then be on target to shoot six times in the mouth. After the explosion, you'll be awarded a 1,000-point bonus.

Tony Knatowicz
Lansing, IL

VANGUARD

If you hit the Kremlus in the third rainbow zone with one of your missiles and *then* dock into it, you will get 1,000 points plus the 100 to 400 points for filling it.

Shawn Fisher
Lebanon, MO

PITFALL!

When you jump a croc, stay as close as you can to the edge of his head, so when he opens his mouth and you're still on his head, you won't fall in.

Miki Susnjar
Loveland, CO

ZAXXON

On the second, third or fourth level, stay low so the robot missiles won't attack. Stay high on the first level.

Douglas Snider
Fairview, Alberta

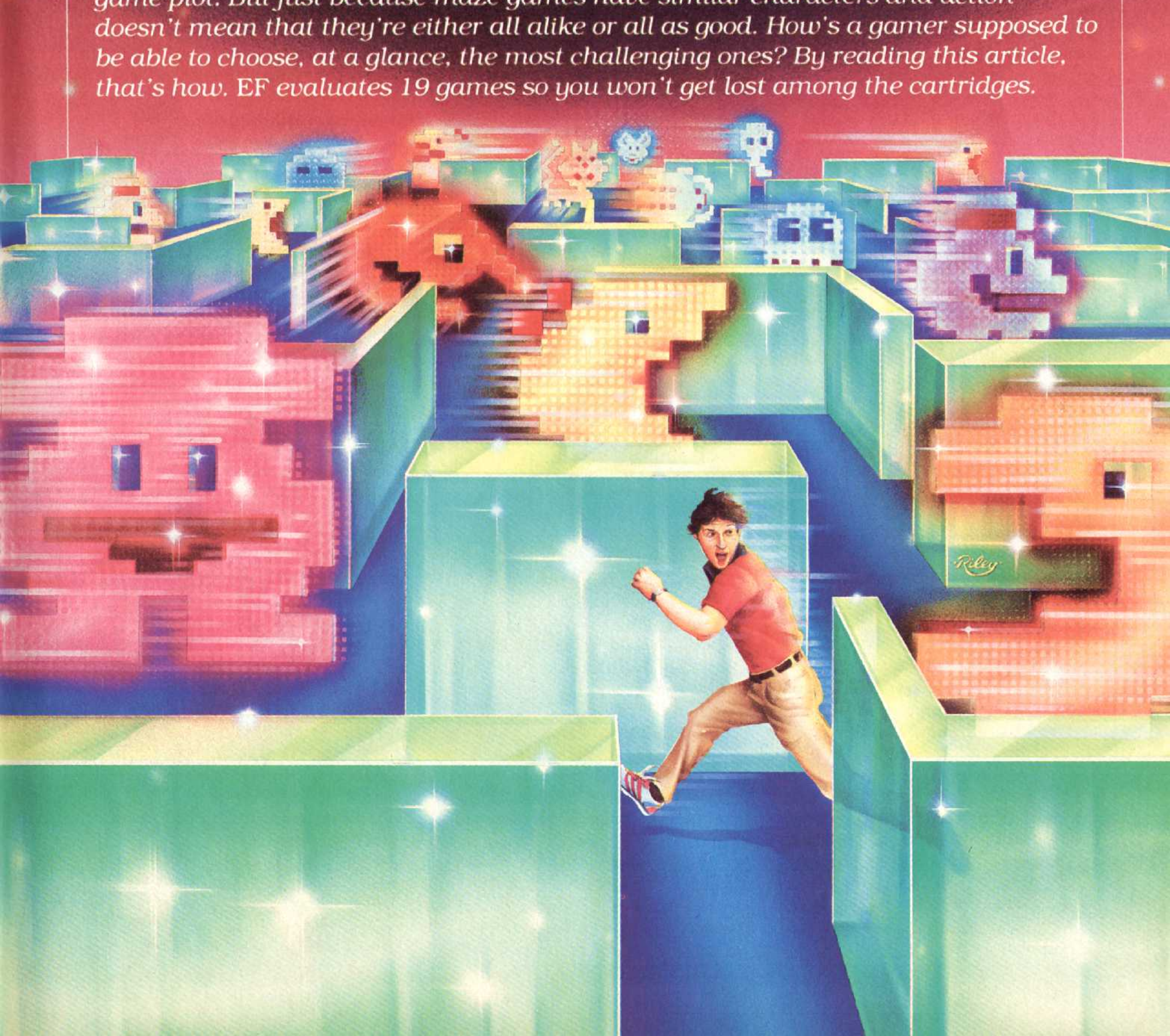
Do you have a tip for your favorite game? If it's good, we'll print it in Reader's Tips. *Send tips to:* Electronic Fun, *350 E. 81st St., New York, NY 10028.*

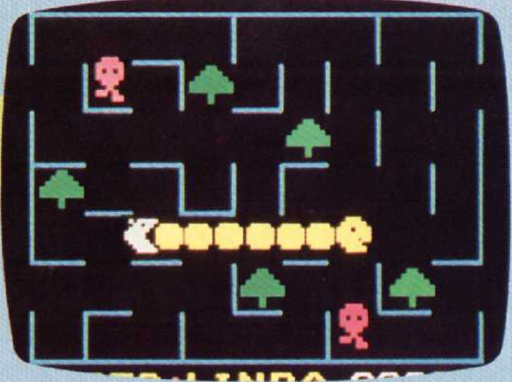
GAME WORKOUT

This way out

Making it through the maze game maze

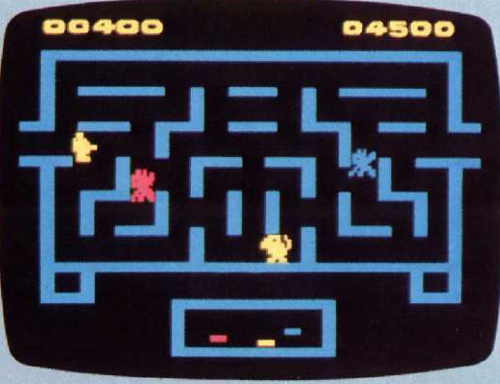
Dead ends. Twists and turns. Doors that revolve and evil robots (among other unfriendly types). These are just some of the elements that figure in your basic maze game plot. But just because maze games have similar characters and action doesn't mean that they're either all alike or all as good. How's a gamer supposed to be able to choose, at a glance, the most challenging ones? By reading this article, that's how. EF *evaluates 19 games so you won't get lost among the cartridges.*





Mazes have been around practically forever. In ancient times they were called labyrinths, which is a bigger word. Whatever you choose to call them, mazes have always been a source of never-ending fun for people. Perhaps "fun" is not exactly the right word. In ancient Greece, there was a maze built by Daedalus which housed the dreaded Minotaur—half-man, half-bull and not very pleasant company. In fact, it existed on a steady diet of maidens and youths. Anyone who played that maze game ran the risk of ending up dead. In those days they played for keeps.

Later, the English monarchs decided that rose gardens were boring and started sculpting all their hedges into mazes. These were placed outside the front entrance, providing a very effective way of keeping unwanted guests out.



You, yourselves, have probably played maze games before you played the video game versions, too. The most primitive form of maze games was often found on placemats at highway diners or on the puzzle pages of comic books. All they required you to do was place the point of your pencil at the start and trace your way out taking the most efficient route. Usually you were asked to help get Herbie home or help Fido find the bone he buried and lost.

But *Pac-Man* changed the face of maze games altogether by introducing an affable character and a bunch of active predators (though not as vicious as the Minotaur). After that, mazes were everywhere.

Revenge Is Sweet

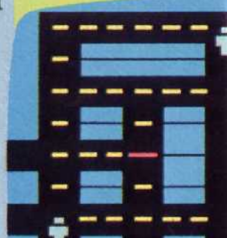
In order to be successful, maze games have to incorporate certain key elements. There has to be a good number of crafty aggressors to keep you on your toes. There has to be the Revenge Factor. In other words, every now and then, you've got to be able to turn the tables and eat your predators. The maze should be complex enough so that one quick glance won't show you the way out. Disappearing mazes are good. Elements of surprise add a lot to the game, preventing you from figuring out exactly what's going to happen next, and originality in the numerous variations and levels is a must. Many maze games advertise 3,005 variations but there's no ostensible difference between them. You could just as well stand on your head and play them and call that a variation.

The maze game that has achieved the greatest renown is, of course, *Pac-Man*. What made the game so popular was its personable central character, and, contrary to many of the requirements stated above, the ease with which it could be semi-mastered. In other words, the first time you picked up the joystick, you could get some gratification and it didn't take long to be able to clear at least two mazes.

Nevertheless, it wasn't an easy game and the element of challenge was also there. Best of all, you could strategize—hover around one of the power pills in the corner, get the senseless ghosts to follow you over there, ingest the pill and eat them up all at once. After this you could cover as much of the rest of the field as possible before the ghosts recovered themselves.

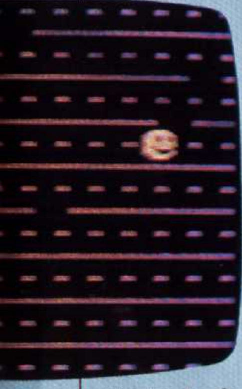
We all know that the VCS version of this arcade classic simply didn't cut the mustard. The graphics were transparent and flickery, the control you wielded over Pac-Man was random at best and the whole personality of the dot was lost in the translation. *Ms. Pac-Man*, on the other hand, managed to recapture all the charm and appeal of the arcade game. She's lovely to look at and delightful to play. And, best of all, she is (given the difficulties inherent in the Atari joystick) controllable. You don't see Ms. Pac-Man being sucked up by just any exit she passes. She's not that kind of dot. She only exits when you direct her to, demonstrating once and for all the superiority of women.

GCE's *Clean Sweep* is the *Pac-Man* clone for the Vectrex system. Although it is set in a maze, that's where the similarity ends. The main character is a vacuum cleaner and the site is a bank. You've got to pick up all the money and, every once in a while, deposit it. There are boxes at each corner which let you turn on your predators—enemies that resemble huge ice picks. Needless to say, unless you're pathologically drawn to

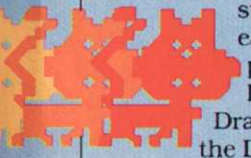


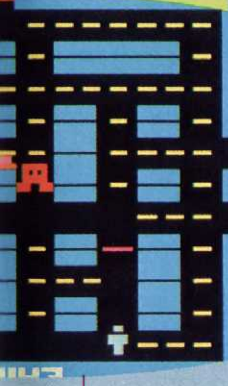
electrical appliances, there is no personable central character.

Jawbreaker could be called *Plaque Man.* You control a set of chomping teeth and you've got to eat a bunch of candy bars (just dashes really) without being chewed up by a smiling face. The maze is nothing more than horizontally arranged tiers with openings, but the openings shift about—and at varying speeds. Thus you've got to anticipate where the next opening will be in order to do well. The controls are less than precise but pressing the fire button will freeze you before you go running into disaster. If you successfully clear the screen, a toothbrush appears and brushes you. No flossing is necessary.

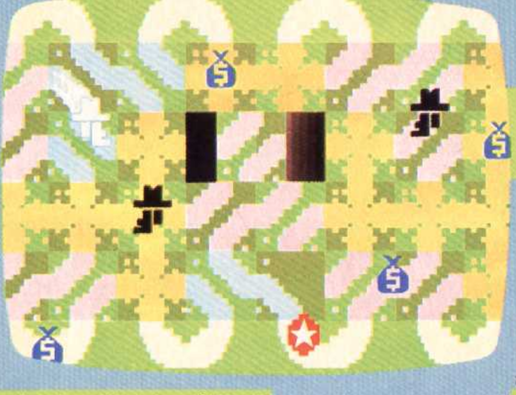


KC Munchkin was pulled from the market, but *KC*'s grinning face is back in *KC's Krazy Chase.* Instead of being a simple eat-em-up game, KC is pitted against the Dratapillar and her Drats. You've got to eat the Dratapillar segments before the Drats or the Dratapillar's dreadful head eats you first. Each time you swallow one of the segments, you can turn on the Drats. There's a wide variety of mazes and you even have the option of programming your own. KC is a voice game and, although it doesn't add much to the playability, it is amusing to hear the little Munchkin cry "Remarkable!" every now and then.





There's a whole category of games in which you find yourself locked in a claustrophobic, dark room with a bunch of people you ordinarily wouldn't socialize with. This is the category into which *Night Stalker* for the Intellivision falls. You're in a creepy dungeon-type place with bats and evil robots. You emerge from the safety of a cage centrally located and you've got to make a mad dash to pick up a gun—your only weapon against the evil ones (which also include huge tarantulas). This is a very difficult game. One brush by a creature of the night and your man dies a laborious death, sinking pitifully to the ground and losing his gun. The graphics are alarmingly realistic.



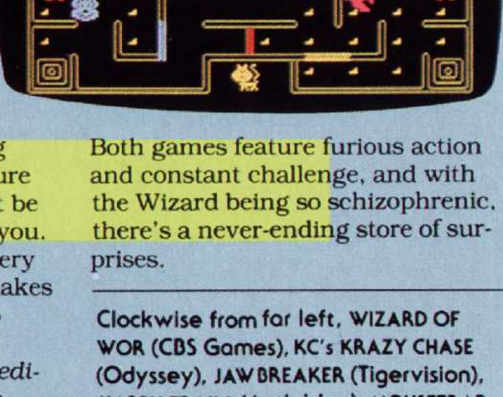
Evil At Every Turn

Berzerk is available in two formats—Vectrex and Atari. It pits you against characters you wouldn't even find at a Mafia wedding. You've got to run through a series of mazes while shooting robots who progress from pacifistic types who don't carry handguns to evil incarnations who shoot lethal bullets at you. And as if this weren't enough, you can't even lean against a wall to rest or you'll be electrocuted. Every once in a while, a face with a malicious grin comes bouncing jauntily through the rooms. Sure he can afford to smile. He can't be destroyed. But he can destroy you. *Berzerk* is a fast, furious and very exciting game and one which takes quick reflexes and an ability to keep your head.

Wizard of Wor and *The Incredible Wizard* are, essentially, the same game for two different systems. In both, you control a Worrior who comes out of a box located at the bottom of the screen. You've got to run through a maze shooting at and avoiding the bullets of creatures such as Burwors, Garwors, and the Worluk. The Burwors are easily avoided and shot but the Garwors have an annoying habit of being invisible much of the time which, in addition to making them difficult to see, makes them almost impossible to shoot. When they're invisible, you can trace their movement on the radar screen underneath the maze.

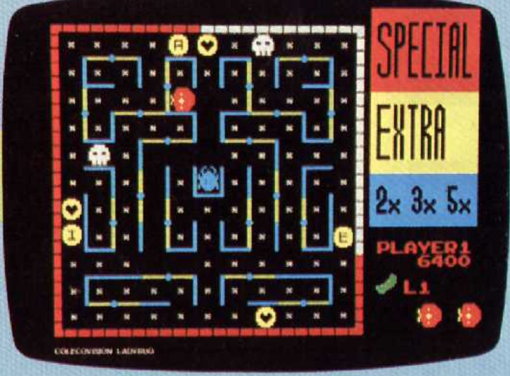
After this you face the Worluk, and if you manage to vanquish him before he escapes from the prison maze, you're confronted by the Wizard. He's a lot more talented than the others and can transport himself magically anywhere on the maze. Once you conquer him, you've won.

The *Incredible Wizard* has the same story line, the same characters and the same plot, and is available on the Astrocade system.



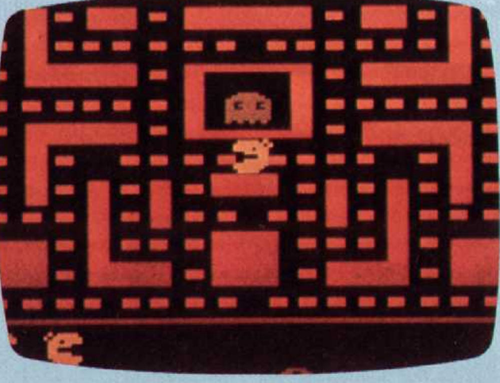
Both games feature furious action and constant challenge, and with the Wizard being so schizophrenic, there's a never-ending store of surprises.

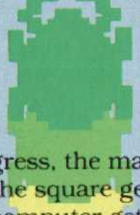
Clockwise from far left, WIZARD OF WOR (CBS Games), KC's KRAZY CHASE (Odyssey), JAWBREAKER (Tigervision), HAPPY TRAILS (Activision), MOUSETRAP (Coleco), LOCK 'N' CHASE (Mattel). Maze games are similar but they all have their own personalities.



Old King Daedalus wouldn't have too much trouble either recognizing or beating the basic maze game now available for play on the VCS and Astrocade home systems: *Maze Craze* (Atari) and *Amazin' Maze* (Astrocade). Both look like one of his blueprints for a Minotaur's home: a two-dimensional labyrinth layout occupied by a traveler and some kind of opponent who hurries him along.

Amazin' Maze starts you out as a red or blue square at one end of a maze map displayed as a system of branching tunnels in different colors. With you at the entrance to this maze is another red or blue square, which can be controlled either by the computer or a human opponent. Your job is to race the other square for the exit at the other end of the maze—and that's it. The only variatons in this simple scheme are dependent on whether you're racing another human or the computer—and while the computer is pretty fast, it *is* possible to beat it often—and which speed level you're on (as you progress, the maze paths get thinner, the square gets smaller and the computer gets faster).





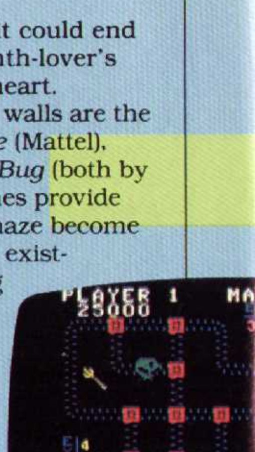
Maze Craze is similar, but it introduces many more variations to the maze-with-opponent equation and has slightly more detailed graphics. Cast as a cop in a little red car, you travel through a very complicated maze of city streets—chased or chasing up to five different robbers in other cars. The game offers 16 different variations, including "invisible" mazes and a "scout" variation that gives you a partner.

Down Memory Lane

Since both games date from the Early Classic period of video game cartridge design—back when 8K was considered a monster amount of memory—you might think their simplicity stems from the limitations of the game systems that played them.

Not so, as abundantly demonstrated by CBS Video Games' *Tunnel Runner*. Cramming much more memory into the same old VCS cart you've always known, *Tunnel Runner* not only gives you the standard two-dimensional maze map, but a three-dimensional view from *inside the maze* as well—something we've seen in very few *computer* maze games, let alone a game for the VCS. Although it's still a find-exit-avoid-enemies maze chase, *Tunnel Runner*'s game play and graphics treatment are so stellar it almost leaves the "basic" category entirely behind. Along with the beautiful 3-D illusion, there are multicolored floors that give you clues to the exit location, a randomizer that comes up with endless new mazes, and enemies who will remind you in some ways of a certain ultra-popular dot cruncher. Due out this month, it could end up as the true labyrinth-lover's deepest affair of the heart.

Mazes with moving walls are the kick in *Lock 'n' Chase* (Mattel), *Mousetrap* and *Lady Bug* (both by Coleco). All three games provide features that let the maze become your ally by shifting existing walls or inventing new ones to block or confuse pursuing enemies.



Lock 'n' Chase would be wellnigh impossible to beat without the central robber-character's ability to lock doors behind him, foiling the angry policemen who chase him through the game's bank-vault maze. Employing this feature profitably is, in fact, the main strategic interest of the game—the cops are so fast and smart that simply trying to avoid them won't get you by. It's also the only feature that will let you last long enough to get at the bags of money and other treasures that materialize in the center of the vault from time to time.

Shifting walls don't take such a central position in *Mousetrap*, but they are one of the best features of a game that is otherwise a more humorous *Pac-Man*. As a mouse pursued by a pack of cats, you're able to shift certain colored sections of the maze walls with a simple flick of the wrist. The shifting sections are so positioned that you can deflect a whole pack of pursuers at one stroke—or even protect your mouse with a solid wall all around, if necessary.

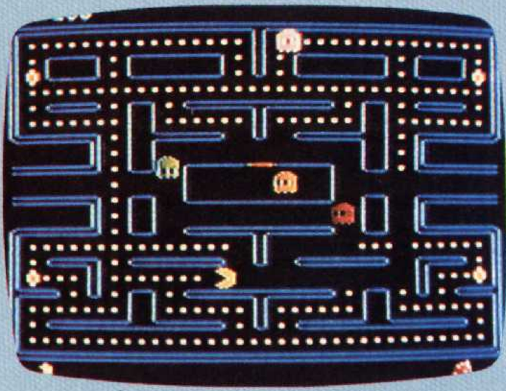
Perfect safety is impossible in *Lady Bug*, because all the shifting walls pivot in the middle—a detail that means any one wall swing can either fend off a pursuing beetle or dump him right in your lap. Like *Lock 'n' Chase* (and unlike

Mousetrap, where you can turn into a dog and bite the cat's back), there's no way to really go on the offensive—the only way you can nail the nasty beetles is to *lure* them across one of the white skulls on the playfield. Thanks be, the beetles are pretty stupid—you've got to be basically in the same corridor for them to see and attack you, and with a swinging wall nearby, it's a snap to avoid their headlong rush toward you.

For the utterly neurotic mazemasters who can't be satisfied with just finding the exit door, there are also games that force you to find pieces of a puzzle while you're finding your way around.

Although it's nominally a combat-type maze—because you spend most of your time placing time bombs in the path of oncoming enemy monsters—the robot hero of Commavid's *Mines of Minos* has another, more important job to do: finding enough spare parts to build other robots, so there's someone to replace him when he dies (you start out with just one robot life to lose). The parts are scattered around the series of mazes in *Mines*, and your robot has to both find them and bring them to a place where they can be assembled —very tough, considering that he is constantly being chased by dozens of monsters, some of whom can move right through the maze walls and take more than one bomb to kill. *Mines* is downright scary, especially the monsters, which are probably the creepiest-looking things ever designed for the VCS.

Want a *real* headache-maker? Try Starpath's *Escape From The Mindmaster*. Locked in a



three-dimensional prison maze, you have to find a number of hidden colored pegs and fit them in the right holes before you can escape to the next highest of six different levels. Along the way (and at random) you're treated to pop tests of your agility, reflexes, recall, dexterity and coordination—each of them a pretty tough puzzle all by itself.

Beat The Clock

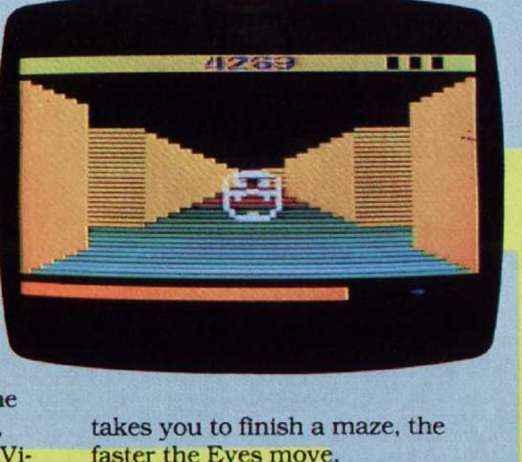
Meanwhile, you're trying to beat the clock, avoid another character who's trying to find *his* way out, and pass dangerous sliding force fields that start flying out of the walls at odd intervals. It's a little like trying to solve differential equations while playing the violin and making breakfast at the same time, but if challenge is what you want, *Escape* has got it to spare.

Although it might appear that there are only a limited number of variations on the old "which way do I go" theme, leave it to the ingenuity of game designers to add even more twists and turns. The popular arcade game *Pepper II*, now out from Coleco on ColecoVision, puts the familiar patterns of chase and eat and clear the board into an entirely new context.

Unlike *Pac-Man* and its clones, which let you take a global view of the maze playfield (in that you can run your man all over the board at will), in *Pepper II* you've got to finish section by section. Pepper runs around the maze zipping the trail behind him until he completes a section. If he doubles back on his tracks before completing the section he *unzips* all his hard work.

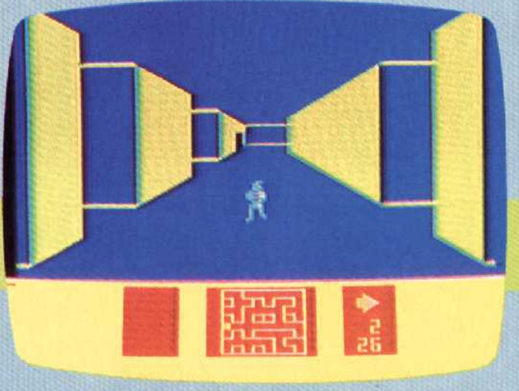
His pursuers, creatures called Eyes, can annihilate Pepper on contact. If Pepper finishes off a section with a pitchfork in it, though, he turns into a devil and can eliminate the Eyes. On harder difficulty levels, Pepper is pursued by an Unzipper.

Although at first glance this all sounds very *Pac-Man*-esque, there are several differences in game design and game play that are crucial. As all *Pac-Man* players know, stay in one place long enough and the ghosts will come running for you—a favorite strategy if you're chewing up the dots in the corners. The *Pepper II* Eyes, however, are programmed to guard unzipped territory, not to chase Pepper. You can hover around a pitchfork square and do nothing but waste valuable time. Time is an important factor—the longer it takes you to finish a maze, the faster the Eyes move.



In fact, your best bet in *Pepper II* is not to chase the Eyes at all. Your prime task is filling up that maze. You've got one pitchfork section at each corner and a fifth in the

Opposite page, top: Coleco's LADYBUG, bottom: the lovely MS. PAC-MAN. Center top: Spicey PEPPER II, bottom: MAZE CRAZE, an early Atari. This page top: The one and only, PAC-MAN and bottom: TUNNEL RUNNER.

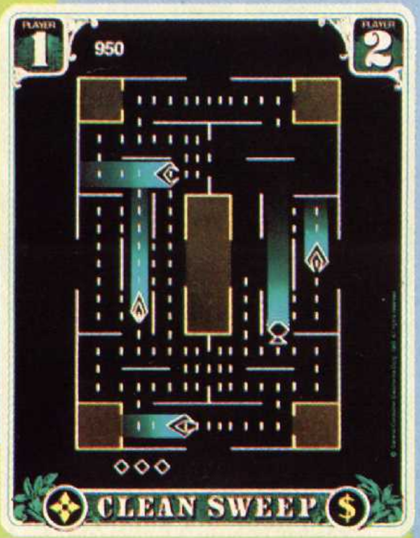


center. If you work in quadrants, saving the pitchfork section until last, you will be bedevilled long enough to move to another quadrant with impunity. If there are any Eyes guarding the unzipped territory you're moving into (and there will be), get 'em.

Save The Forks

Unlike *Pac-Man*, where the action stops when you've cleared the board, in *Pepper II* you've got to get to the next maze (there are four on each level). This may require you to completely traverse your filled-in maze with no more pitchforks to retrieve. This part of the game can be fatal—unless you leave a pitchfork section till last. Then getting to the next maze is no problem at all.

But if it's originality you're after, *Happy Trails* brings to the game screen a unique maze concept. Instead of moving a little character around a maze, you move a maze around a little character. In this Activision game for the Intellivision, a prospector is searching for gold. While he walks along you've got to shuffle sections of trails around to lead him to the riches. Hit a dead end and that's it.



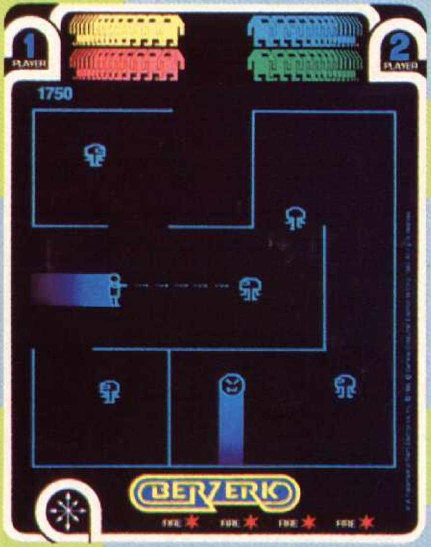
As you progress through the mazes, which get bigger and bigger, your prospector is pursued by an outlaw. In order to stop the outlaw you've got to manipulate the prospector into a red badge and then chase the enemy. Fail to get him in time and you're vulnerable again. Completing the maze, however, only requires picking up all the gold in the alloted time. The outlaw is a bonus. Get really far into the game and you've got two outlaws, but only one badge. It's virtually impossible to eliminate both outlaws.

Once you get the hang of *Happy Trails* you can whip through the first few mazes and get to the real challenge of the game. Your only control over the prospector lets you reverse his direction or speed him up. Both are crucial. For example, reversing direction repeatedly has the same effect as stopping your man while you create a clear trail to the next bag of gold.

What *Happy Trails* really requires, though, is a clear knowledge of the difference between horizontal and vertical. Say your man is at the top of the screen in the center and you want to get him to the right of the screen in the middle. Trying to search for a clear trail in the jumble you're confronted with is useless. Instead you have to concentrate on moving him vertically to the middle of the screen and horizontally to the right. This can sometimes be accomplished at the same time. Get your man on a horizontal piece of trail, clear the way below, and move him and the whole section down. You've gotten him farther down the screen while moving sideways!

Your line of attack to the target is also crucial. Some bags of gold can only be reached from one direction—if your man is walking *up* but can only get the bag of gold by walking *sideways* you may have to make any number of manipulations to turn him at a right angle.

Any gamers out there of a mathematical bent could probably do a thesis on *Happy Trails* and come up with the definitive game strategy at the same time. In many ways the game resembles a two-dimensional Rubik's Cube—a far cry from *Pac-Man*.



More To Come

This is just the first in a series of game workouts in which we will be rounding up and evaluating both video games and computers that fall into the same designated category. In the coming months you'll see articles on the Climbing Games which will include hits like *Donkey Kong*, *Kangaroo* and *Miner 2049er*, Strategy Simulation Games such as *Utopia*, Fantasy/Adventure Games such as *Advanced Dungeons and Dragons* and the *SwordQuest* series, Action Games such as *Centipede* and *Demon Attack* and Driving Games such as *Turbo* and *Enduro* and *Pole Position*. There are so many categories and so many games in each category that a wrap-up like this should be very useful to you in helping you choose those worth buying and those you could live without. ☐

Top: Starpath's MINDMASTER, Above: GCE's BERZERK and left: CLEAN SWEEP, a sort of Pacuum Cleaner maze game.

ELECTRONIC FUN MAGAZINE'S

HOME

1. MS. PAC-MAN (A) (Atari)
2. CENTIPEDE (A) (Atari)
3. SPACE FURY (C) (Coleco)
4. FROGGER (A) (Parker Brothers)
5. PHOENIX (A) (Atari)
6. DONKEY KONG JR. (C) (Coleco)
7. VANGUARD (A) (Atari)
8. RIVER RAID (A) (Activision)
9. SWORDS & SERPENTS (I) (Imagic)
10. PITFALL! (A) (Activision)

ARCADE

1. POLE POSITION (Atari)
2. MS. PAC-MAN (Midway)
3. JOUST (Williams)
4. Q*BERT (Gottlieb)
5. BABY PAC-MAN (Bally)
6. POPEYE (Nintendo)
7. TIME PILOT (Centuri)
8. FRONT LINE (Taito)
9. MILLIPEDE (Atari)
10. GALAGA (Midway)

The arcade Top Ten courtesy of **REPLAY MAGAZINE**, the coin-op Bible. The list of Top Ten home games is the result of an independently conducted survey of retailers across the country. (A) indicates Atari, (I) indicates Intellivision and (C) indicates ColecoVision.

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COMPUTER WORKOUT

The Age of AQUARIUS

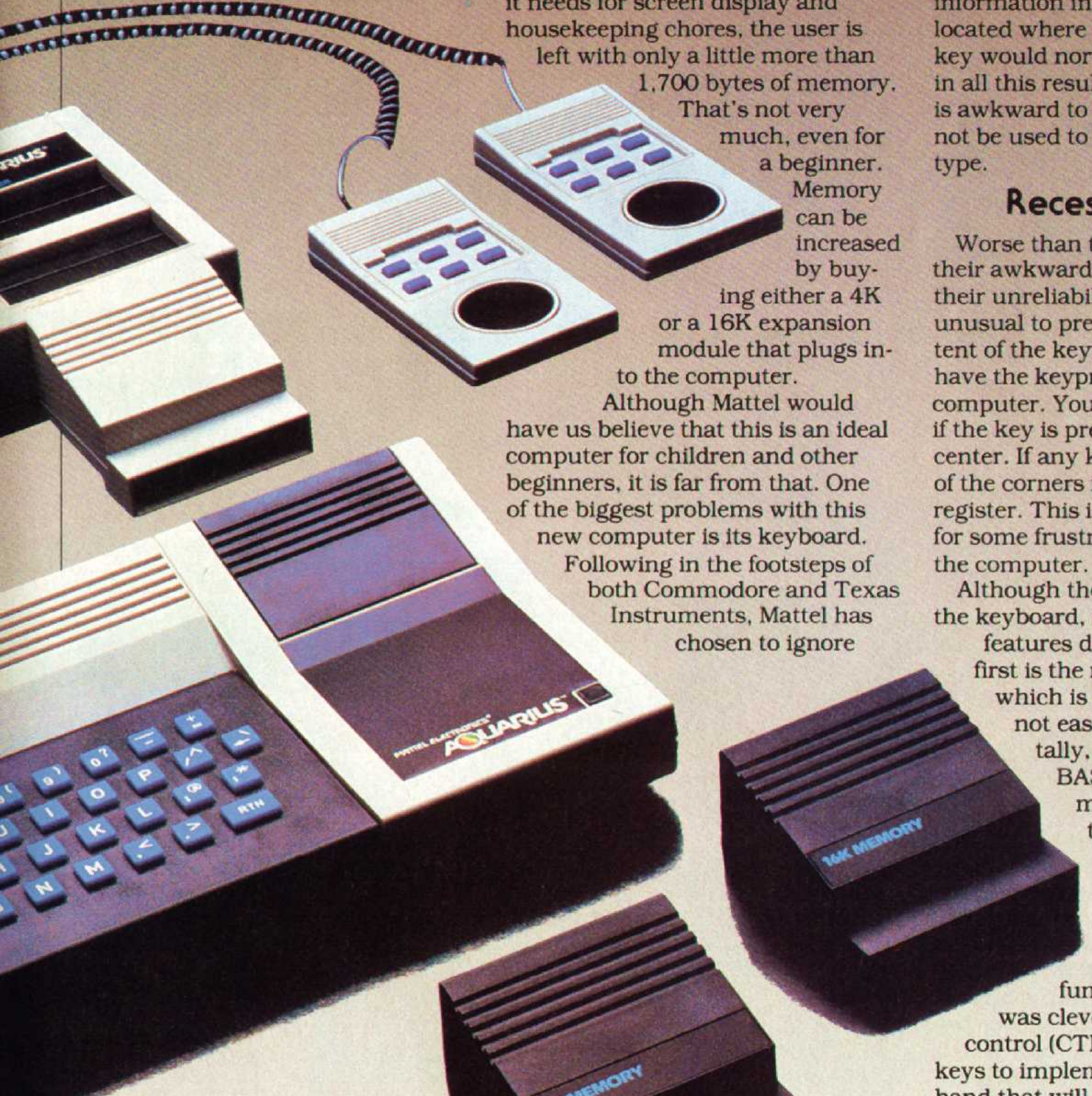
Mattel's under-$200 personal computer

We have computers named after fruit and we have computers named after states of the union so it seems only logical that we should have a computer named after one of the signs of the zodiac. And so we do. The Aquarius is Mattel's bid for a position in the front line of the computer revolution. It has built-in Microsoft BASIC, a recessed RESET key and programmable function keys. Also there's a whole library of software planned including games like BurgerTime. *And while the name is celestial, the price, happily, is less than astronomical.*

MATTEL ELECTRONICS AQUARIUS
PRINTER
PAPER
POWER
MATTEL ELECTRONICS AQUARIUS
DATA RECORDER
RECORD
PLAY
REWIND
FST FRWD
STOP/EJ
PAUSE

By Jules H. Gilder

About three years ago, Mattel came out with a video game called Intellivision, which had great graphics capability, and promised that shortly they would announce an upgrade keyboard component that would convert the video game into a home computer. That unit will be out by the end of the year. In the meantime, though, Mattel has ROM, and features 256 graphics characters and the ability to produce graphic displays with 16 colors. Although it's not mentioned anywhere on the box or in the literature accompanying the computer, the basic unit comes with only 4K of RAM, one fourth the amount of memory provided with the Texas Instruments 99/4A computer which sells for $149. Once the computer takes away the memory it needs for screen display and housekeeping chores, the user is left with only a little more than 1,700 bytes of memory. That's not very much, even for a beginner. Memory can be increased by buying either a 4K or a 16K expansion module that plugs into the computer.



Although Mattel would have us believe that this is an ideal computer for children and other beginners, it is far from that. One of the biggest problems with this new computer is its keyboard. Following in the footsteps of both Commodore and Texas Instruments, Mattel has chosen to ignore the fact that the general public prefers typewriter-like keyboards and has put a non-standard keyboard on its computer. The keyboard consists of 49 rubber keys, most of which are ⅜-inch square. The space-bar key on a standard keyboard has been replaced by a small key placed where the left-hand shift key would normally be located, and the return (RTN) key, which is used to enter information into the computer, is located where the right-hand shift key would normally be placed. All in all this results in a keyboard that is awkward to use and certainly can not be used to teach children to type.

Recessed Reset

Worse than the small keys or their awkward placement is their unreliability. It is not at all unusual to press a key, feel the detent of the keypress, and still not have the keypress register on the computer. You only get a response if the key is pressed exactly in the center. If any key is pressed in any of the corners it simply does not register. This is the perfect set-up for some frustrating sessions with the computer.

Although there are problems with the keyboard, there are three nice features designed into it. The first is the reset (RST) key, which is recessed so that it is not easily pressed accidentally, wiping out whatever BASIC program was in memory. Another nice thing about the keyboard is that it permits the use of overlays, so that keys can be assigned a particular function. Finally, Mattel was clever enough to use the control (CTL) key and other keys to implement a form of shorthand that will print out entire BASIC commands with only two keystrokes. For example, pressing the CTL key and the "2" key causes the word LIST to be typed out. This shorthand approach to writing BASIC programs is very convenient.

Another problem with the Aquarius computer is its power pack. This is a plastic-encased unit similar to the power modules that are used with calculators, but considerably larger and heavier and that's where the problem comes in. Except in the case of very tightly sprung wall outlets (usually outlets that have not been used frequently) the weight of the power pack tends to cause it to fall out of the socket either partially or completely. This can mean losing any program in the computer without warning.

The Aquarius computer is very easy to set up and use. The computer comes with a special set-up manual that contains simplified instruction cards that introduce the user to the computer and show him how to set it up. This manual is spiral bound and has a built-in easel so that it can stand up on the table next to your computer for easy reference. Key sections, such as keyboard overlay, special keys, back panel, set-up, your first program, etc. are all tab indexed for easy access. With this manual it should take no longer than 10 minutes to get the computer up.

Private Tutorial

In addition to the set-up manual, there is a *Guide to Home Computing*. This is a combination reference manual and tutorial and it's a nice introduction for the newcomer to computing. It contains 11 chapters that introduce the user to the various BASIC commands and functions and has lots of short program examples. There are, however, some problems with the manual. One is that there is no index in it, so if you want to find a particular piece of information you have to try and figure out where it is from the table of contents, or just leaf through the book.

Going through the manual, it's obvious that its contents were not reviewed by an educator—a pity since this product is aimed at young people. This point is brought home on page 2-2 of the manual, where several examples of string constants are given. One of these is "Pi = 3.14%. This example is given to illustrate the ability to combine letters, numbers and special characters in a string. And, while the example is correct from this point of view, it is incorrect from a mathematical point of view—Pi is a num-

AQUARIUS
PRINT
AQUARIUS
MINI EXPANDER
AQUARIUS
FILEFORM
1040
AQUARIUS
UTOPIA
AQUARIUS
ASTROSMASH
TRULY SIMPLE!
AQUARIUS
4K MEMORY

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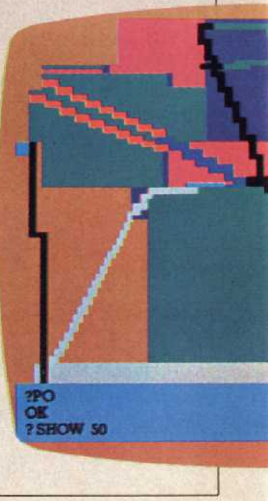

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AQUARIUS
DATA RECORDER
FORM
LOCK 'N' CHASE
SNAFU
TRON DEADLY DISCS
AQUARIUS
HOME COMPUTER SYSTEM
16K MEMORY
MATTEL ELECTRONICS

ber and not a percentage.

There are a few other minor problems with the manual which indicate that it probably wasn't proofread very carefully. In chapter three the user is told that if the cassette recorder is not hooked up, he should go back to page seven in chapter one for instructions on how to do this. This is the wrong page; the user should have been told to turn to page eight instead. A more serious error occurs on page R48 of the manual. A short three-line program is given to demonstrate how the PEEK function works in BASIC, but there is an error in the very first line of the program which will cause it not to run. The line give is 10 CHR$(11) and it should be 10 PRINT CHR$(11). Since these sample programs are meant to demonstrate how a particular command works, they should have been double checked for accuracy.

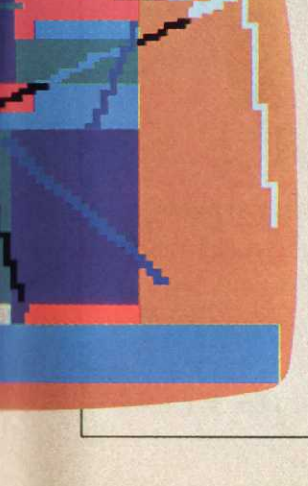
Sneak PEEK

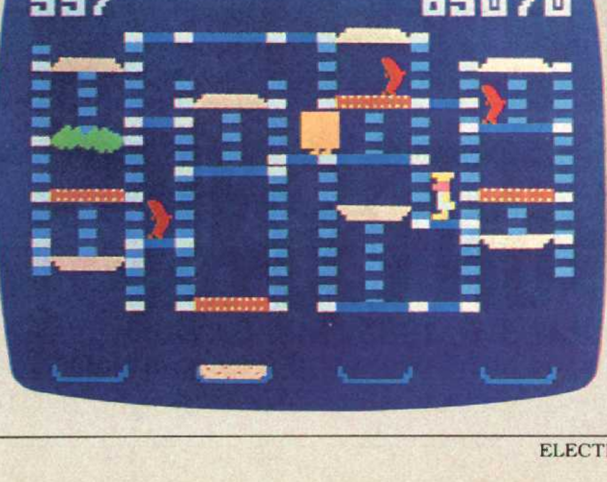
While we are on the subject of PEEK, let's look at another problem. If the user tries to PEEK at a memory location that is lower than 12288, the computer will respond with an FC (illegal function call) error, and the user will think that there is a problem with his computer. Nowhere in the manual does it state that the PEEK command will not work with locations lower than 12288. It doesn't, and this should be stated.

There are two commands in Aquarius BASIC that can be disastrous for the BASIC programmer. They are LLIST and LPRINT. These are commands that are designed to work with a printer and cause information to be printed out on paper. As long as there is a printer hooked up to the system and turned on, there is no problem. If, however, there is no printer connected to the computer, use of either of these commands will cause the computer to go off into never-never land and never-never come back.

Most computers have a special key that can be pressed to abort program execution, while keeping the program in memory intact. The Aquarius doesn't. The only way to break out of this condition on the Aquarius is to press the RST key. This not only stops program execution, but it erases it from memory as well. So, never press RST unless you have absolutely no choice or

Continued on page 96





Above: An array of Aquarius peripherals and software. Left: UTOPIA, LOGO and BURGERTIME for the computer.

YOU'VE READ THE MAGAZINE, NOW SEE THE SHOW!

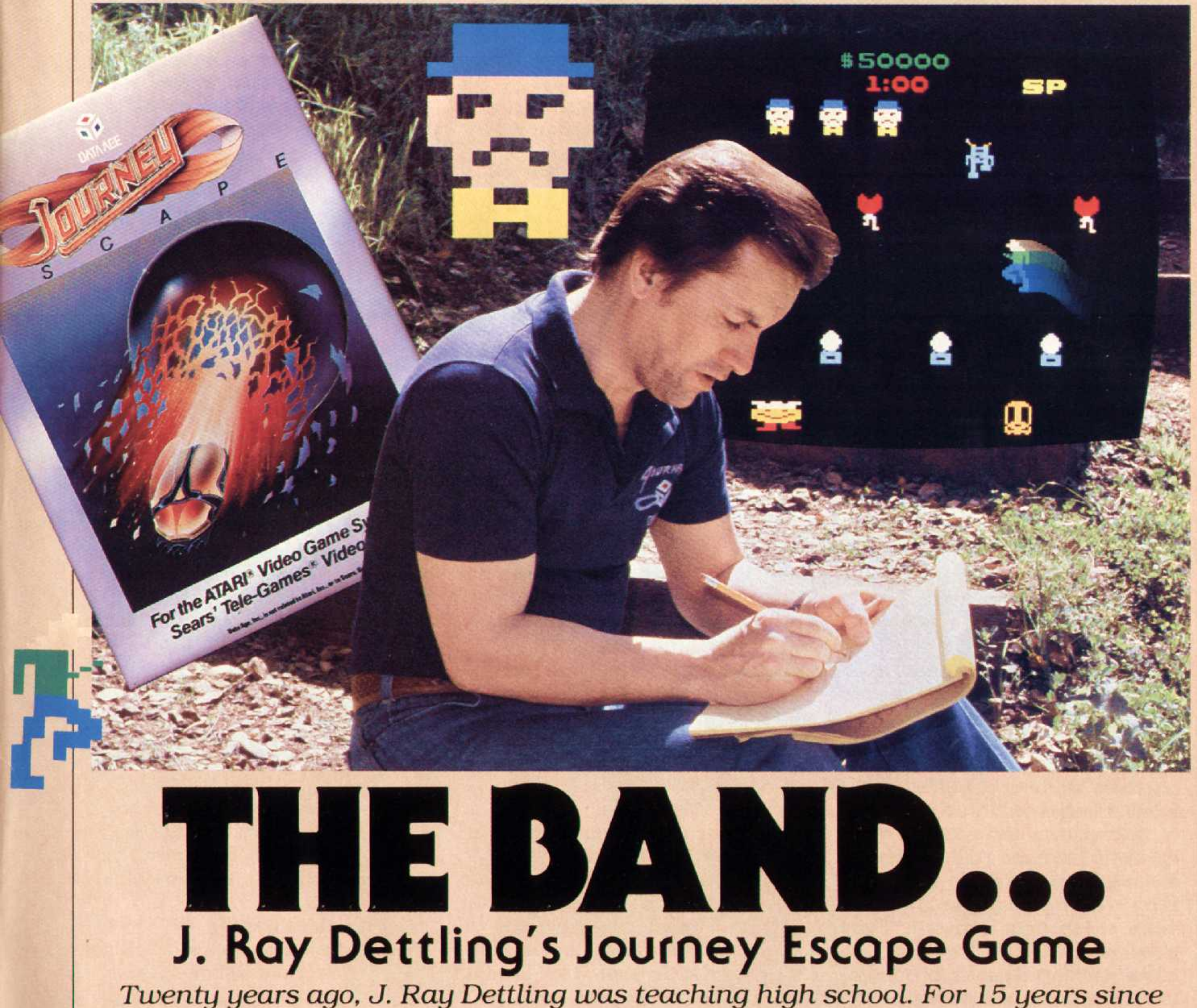
Get ready for the greatest computer and video entertainment show ever. All the latest computers and games will be there for you to try out and buy, along with guest celebrities, contests, prizes and more. You'll also be able to see and touch exciting video products, like videodiscs, projection TVs and video recorders. It will all be waiting for you at the *Electronic Fun Expo* at the New York Coliseum, sponsored by the magazine that's as much fun to read as video games are to play, *Electronic Fun*. Don't miss it!

ELECTRONIC FUN EXPO

November 3-6, 1983/N.Y. Coliseum

PHIL WISWELL'S GAMEMAKERS

A Game To Beat

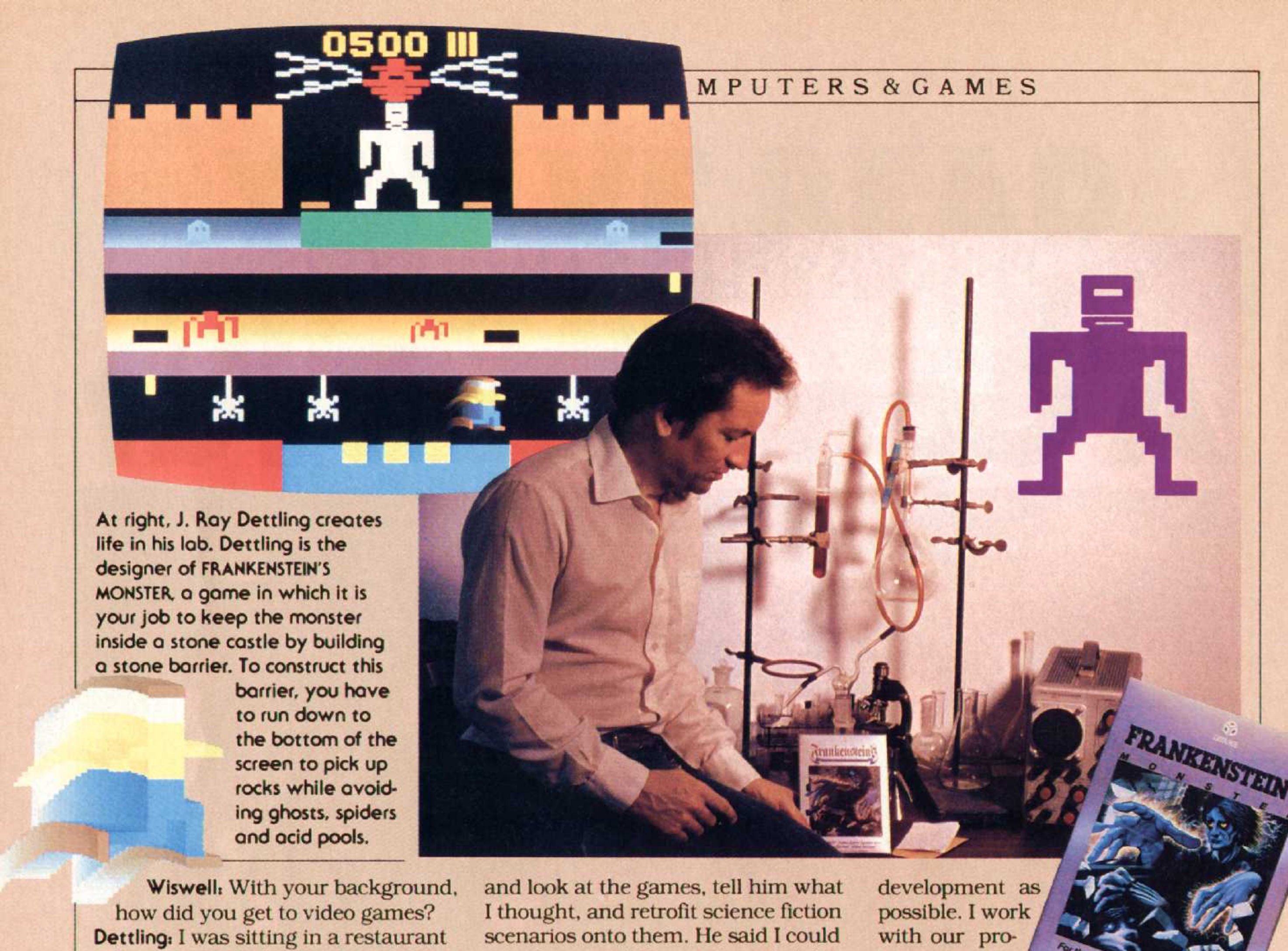

DATA AGE
JOURNEY
ESCAPE
For the ATARI® Video Game Sy
Sears' Tele-Games® Video
$50000
1:00
SP

THE BAND...

J. Ray Dettling's Journey Escape Game

Twenty years ago, J. Ray Dettling was teaching high school. For 15 years since then he has worked in the aerospace industry on the space shuttle. A couple of years ago he began writing and publishing science fiction.

What kind of a man can thoroughly enjoy both science and science fiction, and in his spare time play guitar in a five-piece band called The Wheatstone Bridge? Meet J. Ray Dettling: physicist, author and game designer.


0500 III
FRANKENSTEIN'S
MONSTER
For the ATARI® Video Game System and Sears' Tele-Games® Video Arcade

At right, J. Ray Dettling creates life in his lab. Dettling is the designer of FRANKENSTEIN'S MONSTER, a game in which it is your job to keep the monster inside a stone castle by building a stone barrier. To construct this barrier, you have to run down to the bottom of the screen to pick up rocks while avoiding ghosts, spiders and acid pools.

Wiswell: With your background, how did you get to video games?

Dettling: I was sitting in a restaurant called The Little Amsterdam in Saratoga, California—a place I used to go every morning and write my science fiction. In fact, that morning I was working on a new game concept. Anyway, I was sitting at the counter and Bob Rice, a vice president of Data Age came in. I hadn't met him, but he looked over my shoulder and asked me what I was doing. So I told him, writing science fiction. I looked up the next minute and he was still looking at me. I figured he must be a New York publisher who came out here to scout science fiction writers. He came back over and asked if I would chat with him, and I did, mostly about science fiction. He said he'd been in the record business for 15 years, so I thought to myself, "Okay, he's interested in the band that I have." I whipped out a flier on my band, which seemed to blow him away even more. The bottom line was that he had just gotten into the video game business with Marty Meeker, president of Data Age, and they had five completed games. The company had just started the week before and Bob asked to come down and look at the games, tell him what I thought, and retrofit science fiction scenarios onto them. He said I could spend as much time as I needed. So I went, and 22 hours later they had five science fiction backgrounds for the game—*Warplock, Airlock, Encounter At L-5, SSSnake* and *Bugs*. At the time, the games were less than average. They had no story behind them, no themes at all really. They were little rectangles that chased each other and that sort of thing. By the time they came out, the games were mediocre. At that time I knew nothing about video games other than how to score a meager 5,000 points at *Pac-Man!*

EF: When was this?

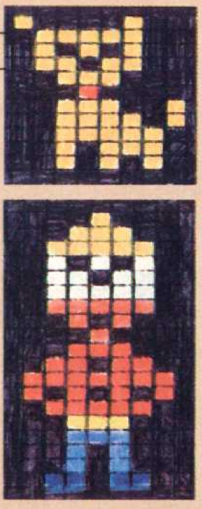
JRD: I started consulting for them in May of 1982, and we had to get things ready for the June Consumer Electronics Show. We scrambled to get sets of instructions down on paper, but it was enough to launch the games at the show. I felt I had a good feeling for the psychology of video games, what makes you feel the tension and all the other good stuff. So they offered me a job at Data Age as product development manager. I've been coming up with game story boards and carrying that end of it as far into the game development as possible. I work with our programmers, although I don't do the detailed work. I can do hexidecimal inputs for graphics. In fact, on our last three games—*Journey/Escape, Bermuda Triangle* and *Frankenstein's Monster*—I worked on the graphics and the sound effects.

EF: What's the story behind Bally/Midway's decision to do *Journey/Escape* as a coin-op?

JRD: I think it was the combination of two things: First, the concept of marrying rock 'n' roll and video games makes you wonder, "Why didn't I think of this before?" Second, what got Bally interested was our demonstration. They loved the game.

EF: Whose idea was it?

JRD: That was Bob Rice's idea. Right after the electronics show in June we had a brainstorming session to figure out what to do next. Bob thought we should come up with a rock 'n' roll game because the two subjects target the same audience. It all made sense from a marketing standpoint, but not from an engineering standpoint, simply



MR. BILL'S BACK ON T.V.
DATA AGE
THERE'S MORE TO OUR BUSINESS THAN FUN AND GAMES.

Some rough drawings from the MR. BILL game.

because I had no idea what we were going to do! About a month later some concepts hit me like a two-by-four—one of them being the *Journey/Escape* concept we have now. There were two other concepts that I can't discuss now because they may go into another rock video game. In a way, I think they were better concepts, but as it turned out we had some contact with the band Journey who, at the time, happened to be thinking about doing a video game. So they were very interested in what we had to say.

EF: Did the band have any input in game development?

JRD: Absolutely. We went to meet the Journey people with some game ideas we wanted to talk about. They handed us a game story board that had a *Donkey Kong* kind of lattice, plus other similarities. Our concept was running up a scrolling screen, avoiding obstacles. And it worked out better that way than to imitate *Donkey Kong*. But what Journey contributed was a story board—I had no idea promoters and photographers were that bad! Then, almost on a daily basis I was in San Francisco talking with Jim Welch, Journey's creative director, to kick around game ideas. Jim was into the concept but was not into game development and had no idea of the limitations of the machine, so I had to kind of keep him honest. Of course, the game designers were keeping *me* honest. We tried to get as much of the Journey property—like the opening scene where the escape vehicle punches through the cosmic egg—as we could into the game. We had another scene in mind for the end of the game, but when we got down to programming, we spent hours and hours trying to find a few extra bytes of memory. It's a very efficient program, but still the gameplay suffered a little bit in trying to get all the property in. We used a lot of memory on that first scene.

EF: Was memory your biggest problem in design?

JRD: Getting as much gameplay and psychology in there while retaining the Journey property was the tough part. We didn't want to make a generic rock game, although that's what we had started with. Journey turned out to be the ideal group. They and the Rolling Stones were our first two choices.

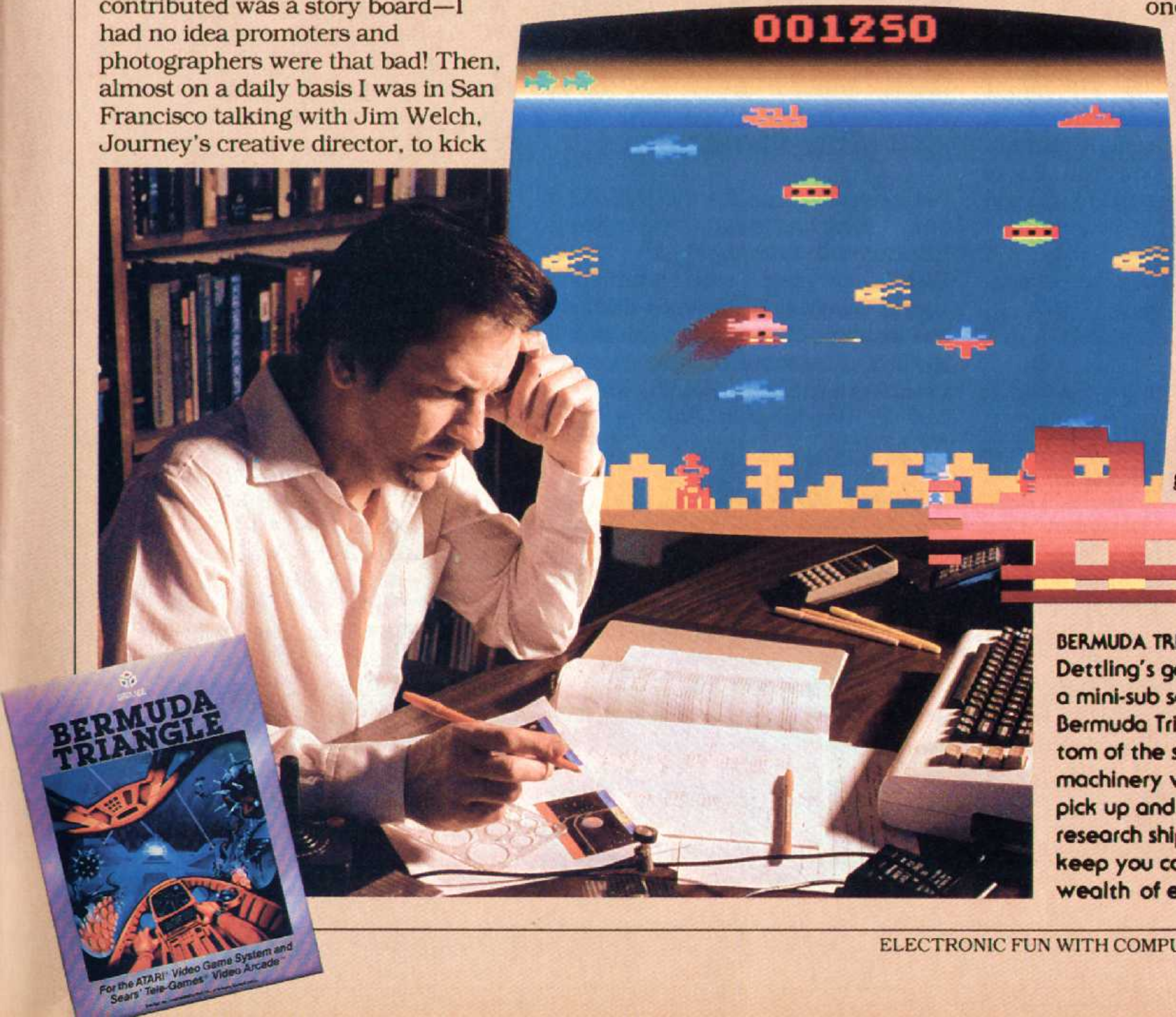
EF: Are the Journey members avid game players?

JRD; Steve Smith, the drummer, is an avid *Defender* player. In fact, at one point, he held the world's record for *Defender*. They even have an arcade *Defender* machine in their road van.

EF: Have they given you any feedback on your game?

JRD: Oh, they loved it. Herbie Herbert, Journey's manager, and Jim Welch were down here playing

Continued on page 96


001250
BERMUDA TRIANGLE
For the ATARI Video Game System and Sears Tele-Games Video Arcade

BERMUDA TRIANGLE is another of Dettling's games. In it you pilot a mini-sub somewhere in the Bermuda Triangle. At the bottom of the screen are pieces of machinery which you've got to pick up and bring back to your research ship on the surface. To keep you company, there's a wealth of evil sea creatures.

BUYER'S GUIDE

Continued from page 69

EPYX (AUTOMATED SIMULATIONS) has six games for the IBM-PC in the Adventure and Arcade category. Adventure titles are *Temple of Apshai, Upper Reaches of Apshai* and *Curse of Ra.* Arcade games include *Star Warriors, Crush, Crumble & Chomp, Jabbertalky.* Company's Pick: *Temple of Apshai. Dungeons & Dragons*-style adventure game finds our hero in the bowels of a great temple filled with monsters, damsels in distress and treasure. **$39.95.** *Address: 1043 Kiel Ct., Sunnyvale, CA 94086.*

EXECUTIVE SOFTWARE PROGRAMMING has one game for the IBM-PC in the Strategy category. Strategy game is *High Roller Casino.* Program features six casino games including *Baccarat, Roulette, Slot Machine, Keno, Craps* and *Wheel of Fortune.* **$49.95.** *Address: 1454 Cortland Ave., San Francisco, CA 94110.*

FAST 'N FUN VIDEO has one game for the IBM-PC in the Arcade category. The Arcade title is *Ultralight Command.* You command a specially outfitted ultralight aircraft. It's equipped with powerful lasers and full radar designed to defend your boats from the highly animated attack helicopters, alien pods and saucers. Game features voice synthesis. **$39.95.** *Address: 1074 E. Sandpiper, Tempe, AZ 85283.*

FUNTASTIC, INC. has four games for the IBM-PC in the Arcade category. Arcade games include *Cosmic Crusader, Snack Attack II, Master Miner* and *Big Top.* Company's Pick: *Snack Attack II.* Designer Dan Illowsky describes his creation as "*The Ms. Pac-Man* of microcomputer games." Originally designed for the Apple II, the game has your Snacker, "which some people believe is a whale," says Illowsky, gobbling up as many gumdrops as possible before the greedy Gumdrop Guards close in. **$38.95.** *Address: 5-12 Wilde Ave., Drexel Hill, PA 19026.*

HOYLE & HOYLE SOFTWARE has three games in the Strategy category for the IBM-PC. Strategy titles are *Remarkable Experience, Galactic Experience* and *Physical Experience.* Company's Pick: *Galactic Experience.* Text-based Strategy game has you attempting to stop a Nova of the Sun kicked off by a group of unknowing scientists. **$19.95.** *Address: 716 S. Elam Ave., Greensboro, NC 27403.*

INFOCOM has five games for the IBM-PC in the Strategy category. Strategy titles are *Zork I, Zork II, Zork III, Deadline* and *Starcross.* Company's Pick: *Deadline.* Working from an actual dossier on the crime and piecing together the myriad clues along the trail is *Deadline's* challenge. Players must solve the mystery within 12 hours. **$39.95.** *Address: 55 Wheeler St., Cambridge, MA 02138.*

INSOFT has three games for the IBM-PC in the Educational category. Educational titles include *Quotrix, Wordtrix* and *Mystrix.* Company's Pick: *Quotrix.* Crossword puzzles, trivia questions and foreign sayings all disguise a famous quote and players must figure it out. **$34.95.** *Address: 10175 SW Barbur Blvd., 202B, Portland, OR 97219.*

ISM has one game for the IBM-PC in the Educational category. Educational title is *Prism.* "Story Disk" complete with animation, sound effects and graphics discloses the location of three keys hidden in the U.S. Ambitious players are asked to seek out the keys. **$24.95.** *Address: 120 E. Washington St., Syracuse, NY 13202.*

LIGHTNING SOFTWARE has one game for the IBM-PC in the Educational category. Educational title is *MasterType.* Words and letters appear in all four corners of the screen sending out a fleet of missiles aimed at your center-screen ship. Your only defense is to type the word correctly. **$49.95.** *Address: PO Box 11725, Palo Alto, CA 94306.*

MATTEL has three games for the IBM-PC in the Arcade category. The Arcade titles are *Burgertime, Lock 'n Chase* and *Night Stalker.* Company's Pick: *Burgertime.* Arcade game adaptation let's you be your own chef by scampering over the ingredients—buns, hamburger patties, tomato slices, lettuce—to drop them onto the plates below. But watch out for the animated "nasties"—Mr. Hotdog, Mr. Egg and Mr. Pickle—who are out to catch you. *Address: 5150 Rosecrans Ave., Hawthorne, CA 90250.*

MICROCOMPUTER GAMES has seven games for the IBM-PC in the Arcade and Strategy category. Arcade titles are *Voyager* and *Galaxy.* Strategy games include *Midway Campaign, Stocks and Bonds, Computer Football Strategy.* Company's Pick: *Voyager.* Players are challenged to explore the four levels of an alien spacecraft's maze-like corridors and rooms in 3-D simulated graphics, all the while avoiding robots programmed to blast any intruders. **$25.** *Address: 4517 Harford Rd., Baltimore, MD 21214.*

MICRO LAB has one game for the IBM-PC in the Arcade category. Arcade title is *Miner 2049er.* Futuristic miner Bounty Bob must "claim" all the various mine stations and battle cute but deadly mutant organisms that prance casually throughout the mine. **$39.95.** *Address: 2310 Skokie Valley Rd., Highland Park, IL 60035.*

ORION SOFTWARE has three games for the IBM-PC in the Arcade category. Arcade titles are *Paratrooper, PC-Man and the Micro Monsters* and *J-Bird.* Company Pick: *J-Bird. Q-Bert*-style game casts you as a block-hopping bird attempting to get all the shapes a single color even as a horde of hazards, including snakes and two critters named Hob and Nob change them back. **$34.95.** *Address: PO Box 4288, Dept. 283, Auburn, AL 36830.*

PC SOFTWARE has one game for the IBM-PC in the Strategy category. Strategy title is *Casino Games.* Blackjack, Poker and Craps with casino odds, sound effects and hi-res graphic displays of cards, dice and craps table. **$45.** *Address: PO box 3806, Cherry Hill, NJ 08034.*

Continued on page 91

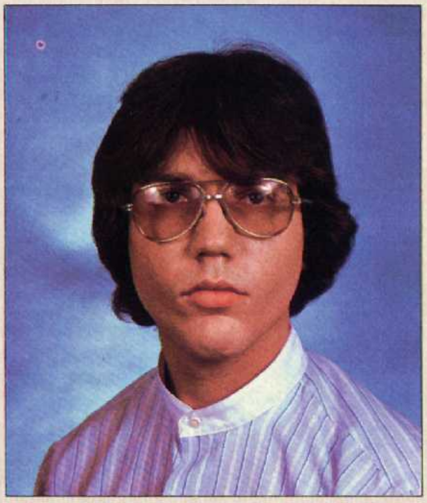
FIRST SCREENING:

ELECTRONIC FUN

Send us a program you've written and maybe we'll send you $100. Each month in First Screening *we print a program one of our readers has written. If you think that you have hidden talent as a designer and you have a program you think deserves recognition, send it to us. For more information, see page XX.*

THE GAME

This game involves the raining down of letters from the top of the screen. If the player catches a letter contained in the title of your magazine, *Electronic Fun*, points will be awarded. If the player misses the letter or catches a letter not in *Electronic Fun*, turns will be forfeited. The player, in order to discriminate, must keep the words "electronic fun" in mind and will receive a reward stimulus (points) forming a positive association with these words. This positive association will be remembered at the newsstand and quite possibly induce the player to choose your magazine over competitors. The author possesses a degree in psychology and designed the game with this in mind.



This month's winner, 24 year old Barry Sean Boyd, author of ELECTRONIC FUN. Barry is studying at George Mason University and plans a career in the biomedical field.

This game utilizes the following features of the Atari 400/800 computer: color, sound, display list interrupts, mixed graphics display and player missile graphics.

HOW TO PLAY

Use your paddle controller to maneuver your playing piece so it will catch the falling letters in the flashing box. But be careful—you can maneuver your box right off the screen. Be sure to keep your box on the screen where you need it most. Catch the letters in the words "electronic fun" and win 10 points. Miss a letter and it will cost you two turns. Catch a letter that is not in "electronic fun" and it will cost you one turn. This game will test both reflexes and discrimination, and after playing it you'll never forget *Electronic Fun*.

```
REM ELECTRONIC FUN
1 REM DATE 12/12/82
2 DIM P$(1)
217 POKE 512,0:POKE 513,6
218 FOR X=1 TO 29
219 READ A:POKE 1535+X,A
220 NEXT X
221 DATA 72,138,72,162,0,189,192,2,
      24,105,16,157,192,2,232,224,4,
      208,242,173,112,2,141,3,208,
      104,170,104,64
1000 DIM CLEAR$(32),BLOCK$(32):FOR
      X=1 TO 32:BLOCK$(X,X)=
      CHR$(255):CLEAR$(X,X)=
      CHR$(0):NEXT X
1010 DIM GOOD$(100),BAD$(100),
      TITLE$(17),LOC(15)
1011 DIM BIT1$(25),BIT2$(25),BIT3$(25)
1013 BIT1$=CLEAR$:BIT2$=CLEAR$:
      BIT3$=CLEAR$
1020 PRINT CHR$(125)
1050 O=0:I1=1:I2=2:I3=3:I4=4:
      I5=5:I6=6:I7=7:I8=8:I9=9:
      I10=10
1060 DIM PCOLOR(I4),PHOZ(I4),PSIZE(I4)
1070 ZZ=53256:TT=704:UU=53248:
      FOR X=I1 TO 4:PCOLOR(X)=TT:
      PSIZE(X)=ZZ:PHOZ(X)=UU:TT=
      TT+1:UU=UU+1:ZZ=ZZ+1:
      NEXT X
1080 REM INITIALIZE PM GRAPHICS
1100 A=PEEK(106)-24:POKE 54279,A:
      PMBASE=A*256:POKE 53277,I3:
      POKE 623,4
1110 A=PEEK(106)-24:POKE 54279,A:
      PMBASE=A*256
1120 PM=PMBASE/256:INDENT=
      PEEK(134)+256*PEEK(135):
      ATAB=PEEK(140)+256*PEEK
      (141):VARBASE=256*PM+1024
      -ATAB
1130 TRIVAR=INT(VARBASE/256):
      SECVAR=VARBASE-256*
      TRIVAR:POKE INDENT+I2,
      SECVAR
1140 POKE INDENT+I3,TRIVAR:POKE
      INDENT+I4,O:POKE INDENT
      +I5,I4
1150 POKE INDENT+I6,O:POKE
      INDENT+I7,14:FOR TT=1 TO
      1024 STEP 32:P$(TT,TT+31)=
      CLEAR$:NEXT TT
1160 POKE 559,62
1170 REM END PM GRAPHIC
      INITIALIZATION
1180 FOR X=1 TO 100:READ A:GOOD$
      (X,X)=CHR$(A):NEXT X
1190 DATA 0,127,127,96,96,124,124,96,
      96,0,0,127,127,96,124,124,96,127,
      127,0,0,63,127,96,96,96,96,127,63,0
1200 DATA 0,127,127,28,28,28,28,127,
      127,0,0,99,99,99,99,99,99,127,127,
      0,0,67,99,119,123,111,103,99,99,0
1210 DATA 0,127,127,99,99,99,99,127,
      127,0,0,126,127,99,127,126,108,
      102,99,0,0,126,127,99,127,126,108,
      102,99,0
1216 DATA 0,127,127,28,28,28,28,28,
      28,0
1220 FOR X=1 TO 100:READ
      A:BAD$(X,X)=CHR$(A):NEXT X
1230 DATA 0,127,99,65,65,127,65,65,65,
      0,0,126,65,65,126,65,65,65,126,
      0,0,124,126,103,99,99,103,126,
      124,0
1240 DATA 0,127,127,96,96,111,97,127,
      127,0,0,99,99,99,127,127,99,99,99,
      0,0,127,12,12,12,12,108,108,56,0
1250 DATA 0,99,102,108,120,120,108,
      102,99,0,0,99,119,127,107,107,
      99,99,99,0,0,126,127,99,127,
      126,96,96,96,0
1260 DATA 0,127,127,99,99,127,127,12,
      6,0
1261 GRAPHICS 16+2:POKE 559,62
1262 FOR X=1 TO 4:POKE PHOZ(X),
      32+32*X:POKE PSIZE(X),3:POKE
      PCOLOR(X),48+16*X:NEXT X
1263 FOR X=1 TO 1024 STEP 32:P$
      (X,X+31)=BLOCK$:NEXT X
1270 TITLE$=" ElEcTrOnIc***FuN":
      FOR X=1 TO 17:POSITION X,3:
      PRINT #6;TITLE$(X,X)
1275 FOR D=1 TO 20:NEXT D:SOUND
      1,X*4,2,8:NEXT X:SOUND 1,0,0,0
1500 FOR X=1 TO 1000:NEXT X:FOR
      X=1 TO 4:POKE PHOZ(X),0:NEXT
      X:GOTO 4000
4000 GRAPHICS 5:Z=40
4005 SETCOLOR 4,10,10:SETCOLOR
      2,0,0:SETCOLOR 1,0,14:
      SETCOLOR 0,0.8
4010 FOR X=5 TO 1 STEP -1
4020 FOR C=1 TO 3
4040 FOR T=1 TO X:COLOR C:PLOT 1,Z:
      DRAWTO 79,Z:Z=Z-0.5:
      NEXT T:NEXT C:NEXT X
4900 FOR X=1 TO 15:READ F:LOC(X)=
      F:NEXT X
4920 DATA 144,182,96,152,80,120,174,
      136,88,56,112,104,128,190,72
4930 REM FOR X=1 TO 15:READ
      T:LOC(X)=T:NEXT X
4950 DATA 80,120,56,144,178,48,112,
      152,186,136,64,160,80,104,72
4960 DL=(PEEK(561)*256)+PEEK(560)
4970 POKE DL+10,PEEK(DL+10)+128
4980 FOR X=1 TO 4:POKE PHOZ(X),
      32+32*X:POKE PSIZE(X),3:POKE
      PCOLOR(X),16*X+2+X:NEXT X
```

NOTE: A bold-faced "**O**" *is the letter of the alphabet.*

```
4990 POKE 54286,221
4995 POKE 559,62
5000 FOR TT = 1 TO 1024 STEP 32:P$
       (TT,TT + 31) = CLEAR$:NEXT TT
5001 FOR X = 1 TO 4:POKE PSIZE(X),
       0:NEXT X
5030 REM NEW GAME
5035 POKE PSIZE(4),3
5040 SCORE = 0:MEN = 10:LX = 1
5050 REM INITIALIZE CYCLE
5051 FOR TT = 1 TO 874 STEP 32:P$
       (TT,TT + 31) = CLEAR$:NEXT TT
5053 MEN = MEN - 1:IF MEN<1 THEN
       GOTO 20000
5055 POKE 53278,0:? CHR$(125);
       "SCORE: ";SCORE:? "TURNS:
       ";MEN:?
5060 FOR X = 1 TO 3:POKE
       PHOZ(X),LOC(LX):LX = LX + 1:
       NEXT X:IF LX >12 THEN LX = 1
5061 POKE PSIZE(4),3:IF SCORE >100
       THEN POKE PSIZE(4),1
5062 IF SCORE >1000 THEN POKE
       PSIZE(4),1
5070 R = 1 + INT(RND(X) * 9):BIT1$(6,15)
       = GOOD$(R * 10,R * 10 + 9)
5080 R = 1 + INT(RND(X) * 9):BIT2$(6,15)
       = BAD$(R * 10,R * 10 + 9)
5090 R = 1 + INT(RND(X) * 9):BIT3$(6,15)
       = GOOD$(R * 10,R * 10 + 9)
5095 P$(855,870) = BLOCK$
5100 Q1 = 0:Q2 = 0:Q3 = 0:B = 5:V = 15:
       D = 25
5110 REM MAIN LOOP
5111 ? CHR$(125);"SCORE: ";SCORE:?
       "TURNS: ";MEN:?
5112 POKE 53278,0
5130 P$(B + Q1,B + Q1 + 20) = BIT1$
5140 P$(255 + V + Q2,275 + V + Q2) = BIT2$
5150 P$(510 + D + Q3,530 + D + Q3) = BIT3$
5160 IF PEEK(53261) = 0 THEN 5190
5161 IF PEEK(53263) = 0 THEN
       POKE 53278,0:GOTO 5190
5165 FOR X = 1 TO 5:SOUND
       0,2,0,8:POKE PSIZE (4),3:FOR
       H = 1 TO 5:NEXT H:POKE
       PSIZE(4),1:SOUND 0,8,0,8
5170 FOR H = 1 TO 5:NEXT H:NEXT X
5180 GOTO 5050
5190 IF [PEEK(53254) < > 0]
       THEN 5195
5191 IF PEEK(53252) = 0 THEN 5210
5195 FOR X = 1 TO 5:SOUND 3,4,20,8:
       SETCOLOR 4,10,14:FOR H = 1 TO
       10:NEXT H:SOUND 3,4,22,8:
       SETCOLOR 4,10,8:FOR H = 1
       TO 5:NEXT H
5197 NEXT X:SOUND 3,0,0,0:MEN =
       MEN - 1:GOTO 5050
5210 IF PEEK(53253) = 0 THEN 5250
5225 P$(254 + V + Q2,276 + V + Q2) =
       CLEAR$
5227 Q2 = 0:R = 1 + INT(RND(R) * 9):BIT2$
       (6,15) = BAD$(R * 10,R * 10 + 9):POKE
       PHOZ(2),LOC(LX):LX = LX + 1:POKE
       53278,0:IF LX>12 THEN LX = 1
5228 GOTO 6000
5250 IF PEEK(53260) = 0 THEN 5500
5270 SOUND 3,29,6,8:SCORE = SCORE
       + 10
5276 P$(B + Q1,B + Q1 + 22) = CLEAR$
5278 Q1 = 0:R = 1 + INT(RND(X) * 9):
       BIT1$(6,15) = GOOD$(R * 10,R * 10 + 9)
5280 POKE 53278,0:POKE PHOZ(1),
       LOC(X):LX = LX + 1:IF
       LX >12 THEN LX = 1
5500 IF PEEK(53262) = 0 THEN 6000
5510 SOUND 3,29,6,8:SCORE =
       SCORE + 10
5520 P$(509 + D + Q3,539 + D + Q3)
       = CLEAR$
5540 Q3 = 0:R = 1 + INT(RND(X) * 9):BIT3$
       (6,15) = GOOD$(R * 10,R * 10 + 9)
5560 POKE PHOZ(3),LOC(LX):LX = LX + 1:
       SOUND 3,0,0,0
6000 Q1 = Q1 + 7:Q2 = Q2 + 7:Q3 = Q3 + 7
6010 SOUND 0,Q1,I10,I1:SOUND
       I1,Q2,I10,I1:SOUND I2,Q3,I10,I1:
       SOUND I3,0,0,0
6015 LX = LX + 1:IF LX   12 THEN LX = 1
6020 GOTO 5110
20000 ? "GAME OVER *** FINAL
       SCORE: ";SCORE:? "HIT SPACE
       BAR FOR NEW GAME":FOR X = 0
       TO 3:SOUND X,0,0,0:NEXT X
20001 X = PEEK(764):IF X = 33 THEN
       POKE 764,0:GOTO 5030
20002 GOTO 20001
```

In order for us to consider your entry, we need the following items: a complete computer program, a brief game description, photographs or drawings of the graphics, a picture of you and a self-addressed, stamped envelope. Send it all to: First Screening, Electronic Fun, *350 East 81st St., New York, NY 10028. Include your phone number so we can reach you.*

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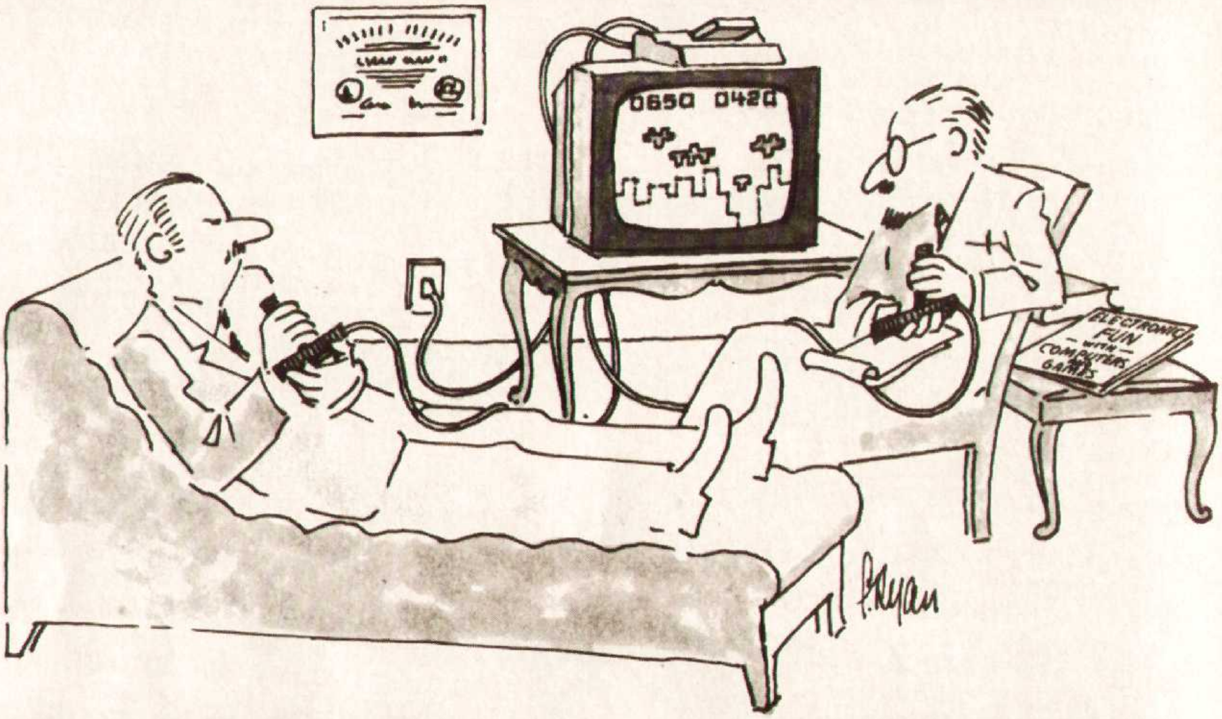
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Continued from page 86

RESTON PUBLISHING has one game for the IBM-PC in the Strategy category. The Strategy title is *Triple Brain Trust*. Trivia quiz game asks questions about sports and movies and allows players to make their own queries. **$29.95.** *Address: 11480 Sunset Hills Rd., Reston, VA 22090.*

SCREENPLAY has three games for the IBM-PC in Adventure and Strategy categories. Strategy title is *Ken Uston's Professional Blackjack*. Adventure games are *Asylum* and *Dunzhin*. Company's Pick: *Dunzhin*. First entry in the *Warrior of Ras* series features speech synthesis to help guide the players through the many mazes, caverns and challenges of the medieval fantasy program. **$39.95.** *Address: PO Box 3558, Chapel Hill, NC 27514.*

SENTIENT SOFTWARE has one game for the IBM-PC in the Adventure category. The Adventure title is *Cyborg*. Science fiction text game in which the problems you must solve are related to the plot. which must also be uncovered. **$34.95.** *Address: PO Box 4929, Aspen CO 81612.*

SIERRA ON-LINE has five games for the IBM-PC in the Arcade category. Arcade titles are *Ulysses*, *Jawbreaker*, *Crossfire*, *Frogger* and *Mouseattack*. Company's Pick: *Crossfire*. The monsters have taken over the city, and as the ace monster fighter you must kill the continually reincarnated nasties by chasing them throughout a grid-style playing field. **$29.95.** *Address: Sierra On-Line Building, Coarsegold, CA.*

SIRIUS SOFTWARE has three titles for the IBM-PC in the Arcade category. Arcade titles include *Call to Arms*, *Gorgon II*, and *Type Attack*. Company's Pick: *Type Attack*. Individual groups of letters and words from the planet Lexicon invade the Earth and it's up to the best typers in the galaxy to repel the invasion by typing in the same letters and words as quickly as possible. **$39.95.** *Address: 10364 Rockingham Dr., Sacramento CA.*

SIR-TECH SOFTWARE has one game for the IBM-PC in the Adventure category. Adventure title is *Wizardry*. Dubbed the finest Apple computer game by Softalk Magazine, the IBM adaptation is a *Dungeons & Dragons*-inspired role playing game in which the player develops the character of the hero before setting off to conquer the adversaries. **$59.95.** *Address: 6 Main St., Ogdensburg, NY 13669.*

SPINNAKER has 11 games for the IBM-PC in the Educational category. Educational titles include *Snooper Troops 1*, *Hey Diddle Diddle*, *Rhymes & Riddles*, *Story Machine*, *Facemaker*, *In Search of the Most Amazing Thing* and *Delta Drawing*. Company's Pick: *Snooper Troops 1*. Detective game asks players to unravel the mystery of a haunted house by interviewing various witnesses and uncovering a variety of clues. Players must take notes. *Address: 215 First St., Cambridge, MA 02142.*

STRATEGIC SIMULATIONS has four games in the Strategy category. Strategy titles include *Warp Factor*, *Tigers in the Snow*, *Epidemic!* and *Galactic Gladiators*. Company's Pick: *Galactic Gladiators*. Space battle game where strategy is as important as strength. Players get to choose what kind of hero they are and which type of villain to fight. on a varying number of battlefields. **$39.95.** *Address: 465 Fairchild Dr., 108, Mountain View, CA 94043.*

WINDMILL SOFTWARE has five games in the Arcade category. Arcade titles include *VideoTrek 88*, *Moon Bugs*, *Floppy Frenzy*, *Attck on Altair* and *The Exterminator*. Company's Pick: *Moon Bugs*. Radioactive bugs are hatching within the moon's nuclear waste zones and are approaching to consume Earth's uranium deposits. Stop them while dodging falling nuclear debris. *Address: 2209 Leominster Dr., Burlington, Ontario,*

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LOGO

Continued from page 43

vocabulary. By doing this, the next time we want to draw a square—or use a square to create a more complex design—all we have to do is type `SQUARE` and the turtle will do the rest. First, though, we have to teach the computer what `SQUARE` means, and to do this requires a program—or "procedure" as it's called in LOGO.

A procedure requires a title line, a set of instructions, and an `END` line. In this case we type

```
TO SQUARE
REPEAT 4 [RD 80 RT 90]
END
```

Now `SQUARE` is as much a part of `LOGO` language as `FORWARD`, `RIGHT` or `LEFT`, and can be used in the same way. For instance, you can draw a square, turn the turtle 20 degrees to the right, draw another square, turn the turtle another 20 degrees, and so on. Repeating this 18 times will result in a circle of squares (there are 360 degrees in a circle; 20 degrees goes into 360 degrees 18 times).

These instructions can be written

```
REPEAT 18 [SQUARE RT 20]
```

Let's give this design a title, say `SPINSQUARE`, put an `END` line on it, and we have yet another procedure. To teach it to the computer, or "define" `SPINSQUARE`, we type

```
TO SPINSQUARE
REPEAT 18 [SQUARE RT 20]
END
```

There are countless designs based on `SQUARE`. Another is a mandala, which uses a two degree turn and 180 repetitions (180x2 = 360). We'll call this procedure `MANDALA` and define it by typing

```
TO MANDALA
REPEAT 180 [SQUARE RT 2]
END
```

Now we have a library or "workspace" with three procedures in it—`SQUARE`, `SPINSQUARE` and `MANDALA`. All three procedures are in the computer's memory at the same time. This makes it possible for one procedure to utilize or to "call" another procedure. For example, `MANDALA` "calls" or uses `SQUARE`. Put another way, `SQUARE` is part of the definition of `MANDALA`. Taking this a step further, a procedure can be written that calls `SPINSQUARE` and `MANDALA`.

```
TO DAZZLE
SPINSQUARE
DRAW
MANDALA
DRAW
END
```

We've defined `DAZZLE` and there are four procedures in our

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workspace. What happens when we type **DAZZLE**? First the **SPINSQUARE** design is drawn. Then the command **DRAW** clears the screen and returns the turtle to home position. The **MANDALA** design is drawn. And again the screen is cleared and the turtle returns to home position. If there were enough procedures in the workspace, **DAZZLE** could be made into a long and interesting display of designs.

So far we've seen how one procedure can call another procedure. Now let's see how a procedure can call itself. We'll modify **DAZZLE** by adding just one line.

```
TO DAZZLE
SPINSQUARE
DRAW
MANDALA
DRAW
DAZZLE
END
```

The sequence is the same as before. **SPINSQUARE** is drawn. The screen is cleared. **MANDALA** is drawn and the screen is cleared. Then **DAZZLE** is called so the whole process begins over again. The procedure repeats and repeats without end. Technically this is known as *tail recursion*, because at the tail end of the procedure there's an instruction that makes the procedure loop back on itself.

Variables

More complex figures require variables. To understand variables, it's necessary to go back to the original **SQUARE** procedure.

```
TO SQUARE
REPEAT 4 [FD 80 RT 90]
END
```

This procedure always draws exactly the same square—80 turtle steps on each side. The following procedure will create squares of any size.

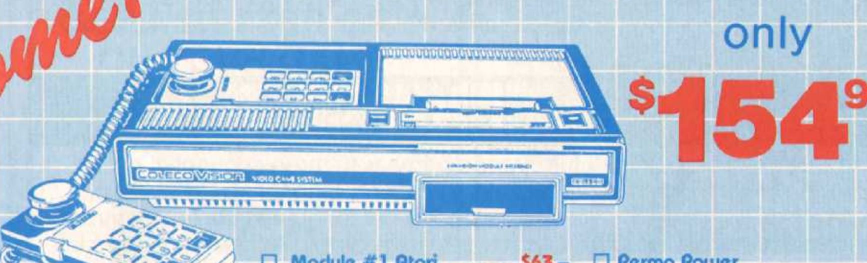
```
TO SQUARE :SIDE
REPEAT 4 [FD :SIDE RT 90]
END
```

We now have in our procedure a variable, **:SIDE**, that can take on any value we care to give it. The variable appears both in the instruction line and in the title line. When the procedure is used, **:SIDE** is given a value. For example, type **SQUARE 25** and the value 25 will be used by the procedure in drawing the square. Or type **SQUARE 30** and the length of the side will be 30. Now you can draw squares of whatever size you please.

Here's a program that allows you, by using variables *and* recursion, to draw a series of squares, each one larger than the previous one.

```
TO MULTISQUARE :SIDE
SQUARE :SIDE
MULTISQUARE :SIDE + 3
END
```

But that's not all. The program is not complete until you assign a value to your variable, **:SIDE**. After



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you've typed END, type "Control C" and the computer will respond by printing "MULTISQUARE DEFINED." Then everything will disappear from the screen. This means that the procedure MULTISQUARE is now a part of the computer's memory. Whenever you want to run MULTISQUARE, what you do is type in MULTISQUARE and follow it with a number (20, 30 or what have you). This number will correspond to the length you want the sides of the first square to be and in this particular procedure three will be added each time.

What happens if you now type MULTISQUARE 20? The value 20 gets passed on to SQUARE :SIDE and a 20-unit square is drawn. Next, MULTISQUARE calls itself with the value of SIDE increased by three. The new value of :SIDE, 23, gets passed on to SQUARE :SIDE and a 23-unit square is drawn. Again, MULTISQUARE calls itself with the value of :SIDE increased by 3. The new value of :SIDE, 26, gets passed on to SQUARE :SIDE, and a 26 unit square is drawn. The process continues in this way, but when the screen is filled with squares, some interesting things happen. Try it and see for yourself.

What about making a spiral using triangles in which the angle stays the same but the side keeps getting longer? Here's a procedure to draw this figure.

```
TO SPIRAL :SIDE
FORWARD :SIDE
RIGHT 123
SPIRAL :SIDE + 3
END
```

This is another example of tail recursion. Each time SPIRAL calls itself, the side is three units longer than it was the time before. Of course, you must assign a value to :SIDE, using the same procedure discussed above for MULTISQUARE.

These are just some of the things you can do with LOGO. It's also possible to create designs based on circles and arcs, but we'll save that for another lesson. You and your turtle can make beautiful graphics together.□

PROMQUEEN

Continued from page 39

said of the Promqueen itself. Programming my first EPROM was something of an adventure, and all I can say to those who buy the Promqueen is this: Don't follow the instructions to the letter. Rather, read them through, figure out what it is you're doing, and then do it, using the instructions as a loose guide.

Here's what happened to me. I typed in my BASIC program, which I wanted to put on a 2716 (2K) EPROM. Following the instructions step by step, my program, along with the AUTO START header, was put into the Promqueen's RAM, all ready to be burned onto my chip. So far so good. Then the instructions said, "Tap the RESET button on the PQ cartridge." I tapped. Back to the book. My BASIC program should be running (There it goes. Hooray!) with the STOP key disabled (uh oh), meaning that it couldn't be stopped without shutting the system off—thereby erasing the RAM (%#*@!).

Okay. I got my program back into RAM, ready to be burned into the EPROM. Great. I loaded HEXKIT and selected the BURN routine. Then I got real smart. I remembered that since I was going to burn a 2716, I should flip the 2732/2716 switch on the Promqueen to 2716, even though the instructions neglected to mention that. Now all I had to do was burn.

Success? No! Errors! I had forgotten (and again the manual didn't help) that my 2716 has only 2K capacity, and therefore I should have burned only the first 2K of RAM to the EPROM.

Ultimately I got my EPROM, thank goodness. In general, Promqueen is a versatile tool with many potential uses, but I wouldn't recommend that the casual hobbyist run out and buy it. It's much easier to store your programs on tape or disk. Still, if you're a serious programmer, or a VIC-20 owner with a yen for something more, the price is quite good for what the unit does. I must confess, I don't own a VIC-20—I've got a TRS-80, and I only wish there was something like the Promqueen and HEXKIT for it.☐

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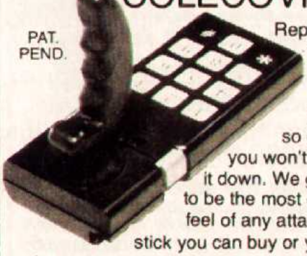

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GAMEMAKERS

Continued from page 85

the game one day and Herbie got so hung up on it we could hardly pull him off.

EF: Is the Atari VCS a lousy music machine?

JRD: Yes. If you notice, the Journey theme is slightly off-key. Some people don't even notice it, but I cringe every time I hear it. On the Atari unit there is an oscillator and a frequency divider and a device that cuts the frequency in thirds. And you can combine those things in different ways to lay out a whole table of frequencies. But when you compare them to musical frequencies, they don't match.

EF: Where do you see video game technology going?

JRD: I see it evolving to almost like producing a movie, where you get a list of credits after the game. We'll develop subroutines for a computer, to help it design its own games—that will happen in an attempt to shorten production time. Right now we have a 4K game on the Atari system and it takes us two or three months to do it. But what happens when you have 64K games? Does it take 16 times longer? No, but it will certainly require more time. Eventually, when we're up in the megabyte realm, you're talking about a big production! I can see games like *Columbo*, say, in which you play the part of the TV detective. By wearing an exoskeleton that detects your movements they are translated into the movements of your character Columbo on the screen, searching for clues to a mystery. I can also imagine wearing a cytronic headband that picks up brainwave patterns and calibrates the machine to know when you're thinking "right, left, rotate, thrust or shoot," so that you can just think your moves and have them happen. It sounds far out, but it's actually ten-year-old technology—they've already done this with artificial limbs. And this is just the tip of the iceberg. We haven't even begun to imagine what's going to happen in the next 10 years, let alone by the year 2001.☐

AQUARIUS

Continued from page 81

have already saved your program.

While the manual provides some good information on BASIC and how to use it, it also has programming examples that teach the user bad programming technique. For example, on page 7-10 there is a sample program that shows the reader that REM statements should be used as the target of a subroutine jump. Examples of jumping to REM statements abound. Good programming practice, however, dictates that subroutine jumps should *not* be to REM statements because these may be eliminated at some later point when the limits of memory are reached. GOTOs and GOSUBs should always be to a functional line.

While the BASIC provided with the Aquarius computer doesn't have all of the bells and whistles found on other machines, it does have a few nice features. To begin with, it allows the user to work with sixteen different colors. It has both foreground and background colors. The foreground colors are what the characters are displayed in and the background colors are what they are displayed on. Thus you can have a red character on a blue background. If you do not want information displayed, you can make the foreground and background colors the same.

The Aquarius computer has two graphics modes—a low-resolution 40-by-24 mode and a higher resolution 80-by-72 mode. The higher resolution is obtained by dividing each low resolution element into six separate elements.

In addition to graphics, the Aquarius computer also has some good sound generating capabilities. The basic unit comes with the ability to generate one channel of sound, (which, by the way, is played back through your television set). The user can program both the duration and the tone of the sound. If you get the Mini Expander for the computer, you get two additional sound channels. Unfortunately, the manual does not tell you how to use these additional channels.

AQUARIUS

Another nice feature of the BASIC provided with the Aquarius is that it has special commands that permit the user to save and load data (arrays). This makes it possible for a user to write programs that can be interrupted and have the intermediate results stored on tape.

In an effort to quell consumer fears of obsolescence, Mattel is planning to bring out a Master Expansion Module in late 1983. This module would be able to accommodate disc drives, the CP/M operating systems and 16K memory expansion boards. ☐

FOOD FIGHT

Continued from page 18

more accurately. To determine which direction you are aiming, look at Chuck's eyes and arms. The way they face is the way he'll throw.

If you manage to get ahead of the pack, you can add to your score by leading the chefs back into the holes they emerged from. Like Mary's infamous lamb, the chefs will follow you anywhere. While avoiding the holes yourself, you can move north and south to jump adversaries. ☐

SINISTAR

Continued from page 19

aggressive and will do everything in their power to stop you from securing the coveted crystals.

When Sinistar announces his presence, take your eyes off the screen and follow his movements on the long range scanner. He is represented by the yellow dot. To insure your safety while you are tracking him, spin your ship in a circle. When Sinistar is about to enter the area around your ship, drop three or four Sinibombs. This will temporarily slow him down.

If more than one Warrior is present on the screen, avoid hovering over a planetoid for more than two seconds. One strategy I found very useful when the skies are choked with warriors is flying in a circular or figure-eight flight pattern. ☐

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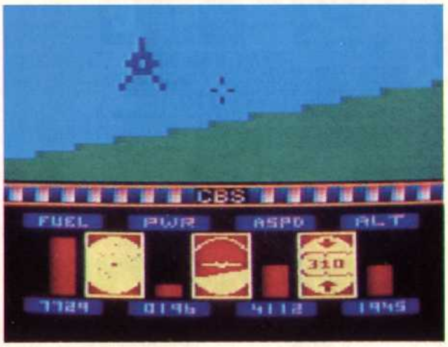
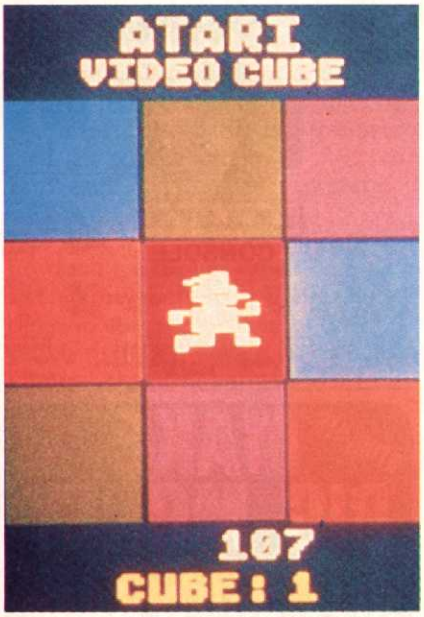
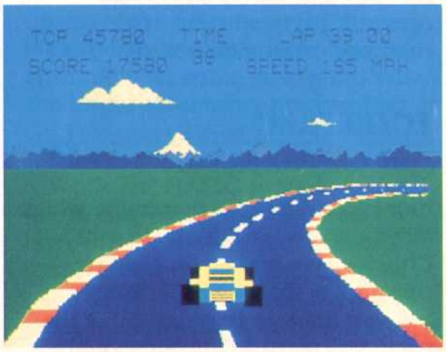
top Secret

Dragon's Lair won't be the only laserdisc game out there this year, gang. You'll also see **Eon and the Time Tunnel** (from **Laser Disc Computer Systems,** set for summer release) and **Sega**'s good ol' **Astron Belt** (premiered last year, getting a heavy road test in Japan right now, and due in your local arcade by November). **The Fly** also hears that **Bally**, Nolan Bushnell's **Sente Technologies** and George Lucas' **Lucasfilm** (he's doing games for Atari now) are all working on laserdisc titles too. Who'll be first to put them out for your home system? Atari and Mattel are big favorites, but The Fly's betting on Coleco—they bought the rights to **Dragon's Lair** all the way back in April . . . Sad to report, most of those laser arcade monsters will be **at least 50 cents a play**—and probably more. C'mon, guys—you weren't really expecting a normal price, were you? . . . **"I can't believe I'm playing this on a VCS"**—typical comment from everybody who's seen **Wings**, a flight/air combat simulation coming this month from **CBS Electronics** (once known as CBS Video Games, by the way). This sucker is so detailed and complex it looks like a **computer** game: scrolling altimeter, fuel and airspeed gauges, radar, artificial horizon, etc. You just plug it in—no cassette player required—and it also comes with a free joystick attachment that lets you fire two kinds of missiles in addition to controlling speed and direction. One of the first of the new, beefed-up VCS breed, gang, and a winner . . . Speaking of winners, that **Pole Position** screen you're looking at is the **home game** screen. The Fly can't believe it either, but pictures don't lie, they say . . . Looks like **ColecoVision** has finally caught on with the other gamemakers. Let's see: **Imagic**, **CBS**, **Fox** and **Starpath** are coming out with Coleco-compatible carts soon, and there's **Microlab** (computer software guys who brought you **Miner 2049er**). Also jumping on the Coleco bandwagon: a **big** company that makes a **competing game system** (name next month). The Fly has seen one of their games and the graphics are totally awesome . . . You'll be getting **color and 3-D graphics capability for your Vectrex** system by this Christmas. No details, but the company says you won't have to buy a whole new system to get 'em . . . **Beating harpoons into joysticks**: Beck-Tech designer **Steve Beck** has got a new VCS cart called **Save the Whales.** All profits go straight to the **Greenpeace** environmental group, Steve says. His next two titles: **Dutch Elm Defender** (profits to the American Horticultural Society) and **Attack of the Baby Seals** (equal time for fur hunters). Oh, I am **so** sure . . . New **Atari Club** release-to-members-only is **Atari Cube**—and believe it, you've never seen a game like this before . . . You can expect just about every new **Williams Electronics** arcade hit to be translated into an Atari home game—Atari now owns first-refusal rights to Williams' titles. Coming: **Moon Patrol** and **Joust**. You'll also be seeing **Battlezone, Dig Dug, Quantum** and **Tempest** from Atari. Can **Sinistar** and **Black Widow** be far behind? . . . Other arcades coming home: Gottlieb's **Mad Planets**, Sega's **Congo Bongo**. Still no word on **Galaga**, though—hard to believe the folks at **Midway** are holding off on a sure bet like that . . . **Eat More Games: Bally/Midway** just collected $600,000 from **Fleer**—royalties on **Pac-Man** candy . . . Keep crunchin', crowd . . . ☐

"The Fly"







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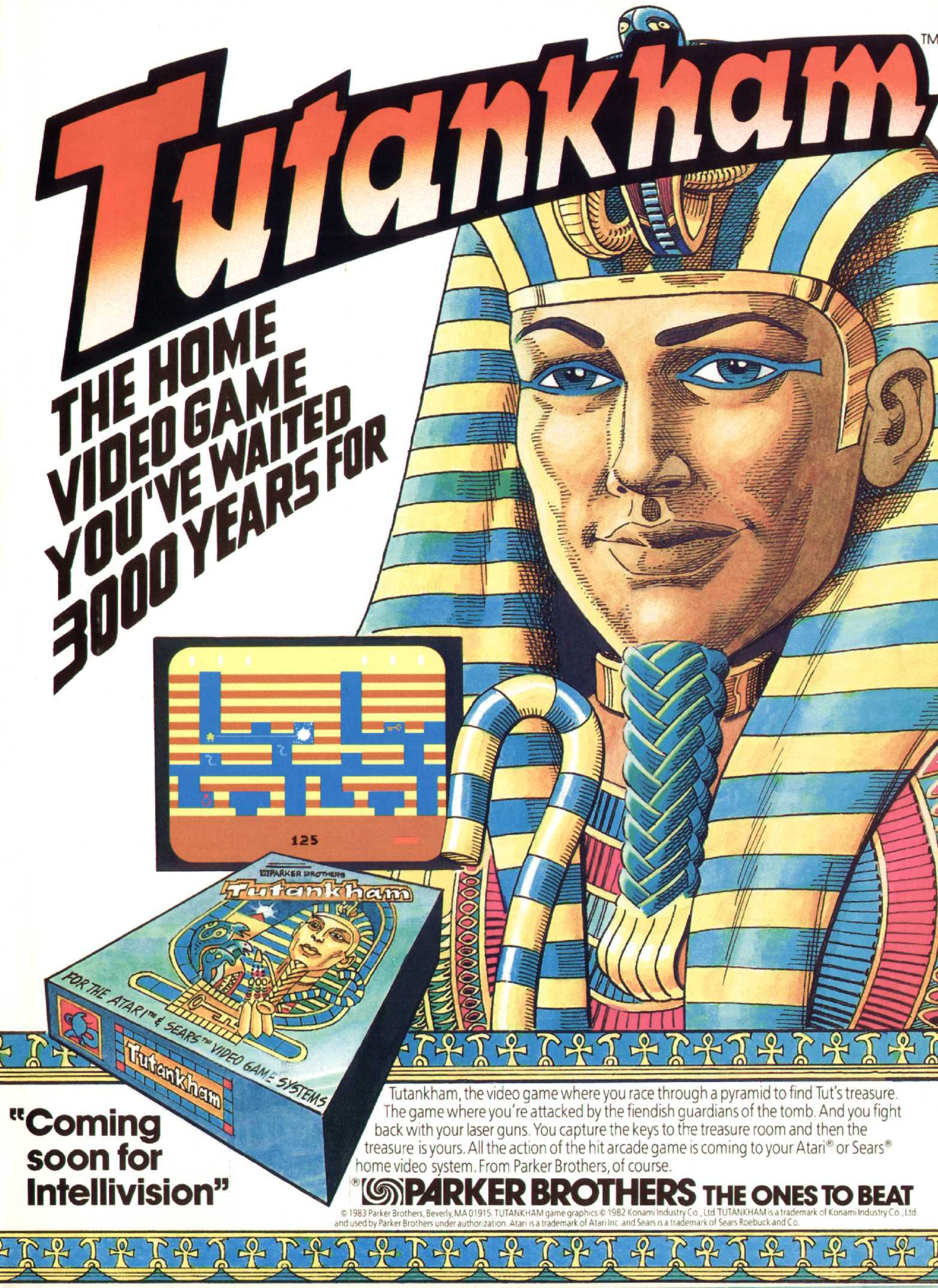
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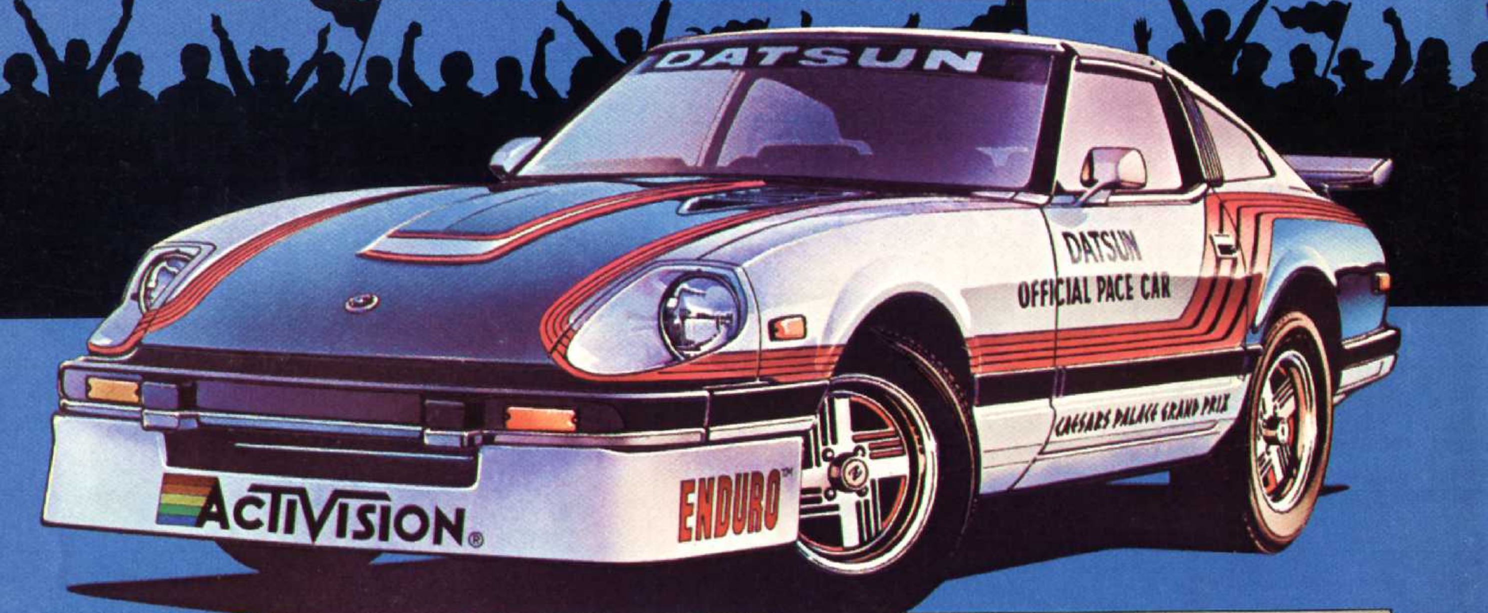

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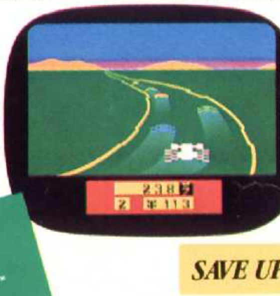

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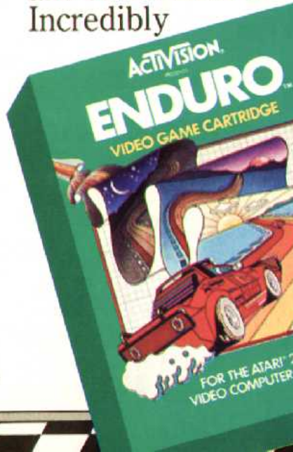

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